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MELODIC TYPES OF HINDUSTHĀN

MELODIC TYPES
OF
HINDUSTHĀN

A SCIENTIFIC INTERPRETATION OF THE RĀGA SYSTEM OF NORTHERN INDIA.

NARENDRA KUMAR BOSE, B.A., B.L.

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To

The Holy Mother

SHĀRADĀ

PREFACE.

The object of this treatise is to give a scientific interpretation of the Rāga system of North Indian melodic music. The book has been divided into three parts, of which the first embodies an elucidation of the scientific principles underlying the melodic art in general, the second contains an exposition of the musical systems of ancient and medieval India, and the third deals with the modern Rāga system of Hindusthān and contains descriptions on scientific lines of seventy Rāgas, with illustrative notations of some difficult and disputed Rāgas. It seeks to standardize the present musical system of Hindusthān and thus put an end to vexatious controversies amongst followers of contending *Gharānās*. A notable feature of the book is that it presents music in just intonation. A scheme for preparing a standard stringed instrument capable of being tuned in intonation, as correct as practically possible, has been given in an appendix.

This treatise is the outcome of wide study of musical literatures of both India and Europe (Vide Bibliography), careful investigation and long research work extending over a period of more than three decades. The current theories of melody were found to be inadequate either for explaining some Scales peculiar to Indian music or for solving many intricate problems. A chain of original theories required for establishing a rational system of melodic music has been propounded and demonstrated with scientific precision in this treatise. The most important of these theories are stated below :—

(1) A Scale is "bi-centric" in character, and not "uni-centric", having two central notes instead of one as hitherto believed.

(2) A Scale is continuously consonant in character, consisting of a continuous chain of consonant Thirds, with a break between the first and the last links, which make a "False Third".

(3) A Scale is composite in character, being composed of two Unitary Scales, one pentachordal and the other tetrachordal.

(4) Melodic music is based on twenty Scales (Grāmas), whereas, the harmonic music of Europe is based on only two Scales, the Major and the Minor. Ten of these Scales, including five characterized as "Primary" and five others characterized as "Secondary", are of simple structure like the European Scales ; the remaining ten characterized as "Chromatic" are of peculiar structure, having double Thirds (Major and Minor) either above or below their central notes.

(5) Melodic Types (Rāgas) of Indian music are based on the Modes or Species of Octave (Murchhanās) of the twenty Scales, which are one hundred and forty in number, each Scale having seven Modes, starting from its seven notes.

(6) Melas, on which modern melodic music of India is mainly based, represent Common-Initial forms of the Modes, the common Initial of all Melas being the first note of the Indian gamut (Sa). The number of Melas is one hundred and five, which are capable of representing all the Modes.

(7) Melodic structure is based on "Perfect Phrases", just as harmonic structure is based on "Chords". These Perfect Phrases are derived from "Dissonant Triads", consisting of three notes, two of which are dissonant to each other and consonant to the third ; whereas, chords, their analogues in harmony, are derived from "Consonant Triads", consisting of three notes, which are all consonant to each other, The former have been characterized as "Melodic Triads" and the latter as "Harmonic Triads".

(8) Melodic Triads, which are fourteen in number, give rise to one hundred and twenty-six "Cadence-

Norms" (Nyāsa Nidarsha), each of which in combination with other notes can be made the basis of the characteristic Perfect Phrases of several Melodic Types of similar character.

A rational and complete system of melodic music has been worked on the basis of these theories. It has been found to be quite adequate for explaining the structure of all current and possible Scales and for solving most of the knotty problems of ancient and medieval Indian music, as also for ascertaining the character of modern Rāgas. The principles laid down in the book, which have been shown to the applicable to modern Hindusthānî music, will be found to be of universal application. The treatise is, therefore, expected to have international value. It will be found to be eminently suitable for the higher courses of musical study and quite helpful in providing the theoretical knowledge of high standard required of music graduates of universities.

37, Sikdarbagan Street,
Calcutta-4.
December 7, 1960

Narendra Kumar Bose

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INTRODUCTION.

Vocal melody is almost coeval with the human race as a gift of nature if not as an art. Philologists hold that it is even anterior to language itself. It is, indeed, so natural to man that it may be said to be, in the language of Dr. Burney, implied in the original principles of his constitution. The most primitive peoples have been found to possess melodies of their own in the shape of short crude phrases. Exuberance of human feelings has always sought expression either in rhythmic movements of the body or in melodious modulation of the voice. Melody had its birth in a natural human instinct, which with the cultural progress of the race developed into what is known as the musical faculty. The essential feature of this faculty consists in the appreciation of certain relationships of sounds which scientists of the eighteenth century discovered to be determinable with mathematical precision. These relationships had long before been known as Consonances. An appreciation of these is the *sine qua non* for the birth and growth of melody. It is not implied in this statement that this appreciation has ever been either conscious or complete. But, as music is the only fine art which is firmly based on scientific principles, some amount of instinctive appreciation of these principles must be presumed in order to explain the great development the art has achieved. That development was attained *pari passu* with the growth of the faculty referred to above. Those consonances which are easy to perceive, viz, the Octave, the Fifth and the Fourth were recognised by musicians in very ancient times. Others, which are rather difficult to perceive, viz. the Thirds and the Sixths were recognised very late and a certain amount of uncertainty about their exact nature has always been felt by musicians so far at least as their explicit recognition in the theory of music

was concerned. We are told that the Greeks and their followers the Romans never acknowledged these latter relationships as consonances. In the Pythagorean intonation these intervals are very much out of tune and so long as this intonation prevailed in Europe, appreciation of their consonant character remained almost an impossibility until some urgent artistic need drew the attention of the musicians to their true nature. That need arose after the invention of polyphony in the middle ages. In the earliest contrapuntal writings of the 13th and 14th centuries the only concords used were the Octave, the Fifth and the Fourth. But, in course of time, as the harmonic poverty of these intervals came to be more and more keenly felt, the superior harmonic quality of the imperfect concords came to be more clearly appreciated, until the rules of harmony were completely inverted; and we come across a paradoxical revolution of ideas in the fact that consecutive Thirds and Sixths, which were strictly forbidden in medieval discant, became the rule of harmony in the mature polyphonic art of the 16th century, while consecutive Octaves and Fifths, which once reigned supreme, were now strictly forbidden. It should, however, be pointed out that only the Major Third and its inversion the Minor Sixth were accepted as concords in the 16th century polyphony. The other two imperfect concords were fully recognised after the growth of harmony about the time when their consonant character was finally established by scientific investigation. In India both the kinds of consonances were appreciated by the earliest writers on music. But the inferior kind does not appear to have ever received explicit recognition from practical musicians. A word which looks like literal translation of the word 'consonance' (*con*, together, and *sono*, to sound) is to be found in a Sanskrit work of the 1st century A. D. named Bhāratiya Nātya Shāstra. That word is Samvāda (*sam*, together, and *vad*, to speak). Evidently this Sanskrit word was used to express the same idea as that conveyed by its English equivalent. It implied the particular relationships of notes, which, in the language of the musical theorists of India, were separated by either thirteen or nine

Shrutis[1]. These numbers of the *Shrutis* represented the intervals of the Fifth and the Fourth respectively. It is, therefore, clear that the word *Samvāda* implied perfect consonance. Two notes which have this relationship between them were characterized as *Samvādî* (consonant) to each other. The relationship of dissonance was expressed by the word *Vivāda* (*Vi*, against and *vad*, to speak). Two notes which are separated by twenty Shrutis were regarded as Vivādî (dissonant) to each other[2]. This interval is the Major Seventh. Its inversion the Minor Second, separated by two Shrutis (the whole octave consisting of twenty-two Shrutis) was, therefore, also considered dissonant. The Minor Second or the interval of a semitone and the Major Seventh were, thus, the only intervals which were treated as dissonant. All other intervals were deemed to have the third kind of relationship, viz. *Anuvāda* (*anu*, after and *vad*, to speak). Distinguished both from perfect consonance (Samvāda) and dissonance (Vivāda), this relationship evidently stood between them and signified imperfect consonance. Eliminating the intervals included in the other two relationships, we get the Thirds and the Major Second and their inversions the Sixths and the Minor Seventh as the main intervals which were treated as *Anuvādî*. The reason for including the Major Second and the Minor Seventh in this category seems to be that, next to the perfect consonances, these are intervals which can be obtained most easily. The Major Second can be had by rising two Fifths and coming down an Octave and the Minor Seventh by simply rising two Fourths. We are told that Guido d' Arrezo, who lived in the 11th century A.D., similarly included

1. "ययोश्च नवत्रयोदशकं परस्परतः श्रत्यन्तरे तावन्योन्य-सम्वादिनौ ।"

Those (notes) which have nine or thirteen Shruti intervals between them are *Samvādî* to each other.

—Bhāratiya Nātya Shāstra, Ch. 29.

2. "विवादिनस्तु ये तेषां स्याद् विंशतिकम् अन्तरम् ।"

Those (notes) which are Vivādî, have twenty Shrutis between them.

Ibid.

the Major Second within the same category as the Major and Minor Thirds[3]. The ugly interval, known as the tritone, which might be said to be included within the category of *Anuvādî*, presented no serious difficulty, inasmuch as it occurs only once in a scale, and secondly, because it was most often avoided by the device called *Varjana* (omission) of one or both of the notes making this interval. Mainly and for practical purposes, therefore, the imperfect consonances of the Thirds and the Sixths were the only intervals which were treated as *Anuvādî*. It has ben shown in the eighth chapter that the Major and Minor Thirds were represented by seven and six Shrutis respectively. The thoery regarding the relationship of notes set forth above appears to have been originally propounded long before the christian era, inasmuch as the two great poets Kālidāsa and Bhavabhuti, both of whom lived in the 4th century A. D., mention the name of Bharata, the former as an ancient sage (*muni*) and the latter as the author of a book of aphorisms relating to the triune arts of singing, dancing and instrumental music (tauryatrika-Sutrakāra).

The four ancient Grāmas (scales) including the Shadja and the Madhyama and their two derivatives, defined in terms of Shrutis by Bharata, have been shown in the eighth chapter of this treatise to be quite consistent with the scientific principles of structure of scales formulated by the great scientist, Prof. Helmholtz. These scales and the modes derived from them can be identified with most of the ancient Greek and Greeko-Roman scales and the Ecclesiastical Modes of medieval Europe, which have been scientifically explained by Helmholtz in his "Sensations of Tone." The ancient melodic system of India based on these scales presents no grea t difficulty so far as their scientific basis is concerned. This system, in which no Vikrita

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3. "But Guido, though he speaks of the Fourth as the most important interval, permits the use of the Major Second and the Major and the Minor Third."

—Groves' Dictionary of Music and Musicians. Vol. III, p. 198.

(chromatic) notes, except the Antara and for a limited purpose the Kākali, were used, continued for several centuries till the great revolution which brought into being the Mela system about the 11th century A.D. The earliest writer on this system is Lochana Pandita of Mithilā (then a part of Bengal) who, according to his own statement, wrote his "Rāga Taranginî" in the Shaka Year 1082 (1160 A.D.). This work was written about half a century earlier than the great work of Shārangadeva "Sangît Ratnākara" (1210-1247 A.D.). It appears that the Mela system had not yet come into vogue in that part of the country in which Shārngadeva lived, for, not a vestige of that system is to be found in his work. The Grāmas and their Murchhanās on which the ancient melodic edifice was built were abandoned and the Shrutis lost their original significance in the new order of things. Five Vikrita (chromatic) notes were introduced and numerous combinations of the seven Shuddha (natural) and the five Vikrita notes were called Samsthānas or Melas. These Melas appeared in two different forms in the two schools of Indian Music: the Hindusthānî or Northern and the Kārnātic or Southern. The Scales of Origin and the vikrita notes were different in the two schools. The Scale of Origin of medieval Hindusthānî music was equivalent to the ancient Shadja Grāma and that of modern Hindusthānî music is a scale which is equivalent to the European Major Scale. Both these scales are diatonic. But the Scale of Origin of Southern India is a scale of unusual structure not found in any other part of the world. Many Melas of similar structure are found in both the schools of music. These Melas appear to be peculiarly southern in character and must have been Dravidian in origin. They are very similar to the chromatic scale of ancient Greece which made its appearance there for some time and subsequently disappeared. These Melas presented the greatest difficulty. Existing principles of structure of scales could not explain them. New principles had to be discovered. After prolonged investigation undertaken with this end in view a theory has been formulated, which is, it is claimed, capable of explaining scientifically the structure of all known melodic forms. This theory has been set forth in

three chapters : the fourth, the fifth and the sixth. Preliminary topics relevant to the elucidation of the theory have been dealt with in the first three chapters. A new system of notation needed for expressing scales and modes in just intonation has been devised in the first chapter and the scientific theory of consonance has been fully explained in the second chapter. The inadequacy of the cycle of twenty-two on which the ancient Shruti system was based, has been shown and substitution of the cycle of fifty-three has been proposed in the third chapter, the new divisions being called Anushrutis or nonatones. Relationships of notes have, according to the salutary ancient Indian custom, been expressed by means of these Anushrutis throughout the whole treatise. The principles underlying the structure of scales have been explained in three different aspects in the fourth chapter. The next two chapters are devoted to explanation of the structure of scales. Altogether twenty scales have been found to be sufficient to serve as basis of all possible melodic forms and compositions. These have been divided into four groups of five each. The first two groups contain scales of diatonic structure, which have been characterized as Simple Scales. Group A of these scales has also been called Primary Scales and Group B Secondary Scales. The other two groups have been termed Chromatic Scales on the analogy of a Greek scale of similar character referred to above. These scales possess the peculiar feature that their tonics have both the Major and the Minor Thirds placed one after the other either above or below them. Group A in which the Thirds are placed above the tonics are ascending and Group B in which the Thirds are placed below the tonics are descending in character.

The first four scales of the Primary Group, which include the European Major and Minor Scales, were the basis of all ancient music both in Europe and in India. They are identical with the four ancient scales, defined by Bharata, which were the sole basis of Indian music till the introduction of the Mela system. Each of these scales was used in seven Murchhanās or mode-octaves starting from the seven notes of the scales. The illusive conception of "Murchhanā" which

has been translated into English by the the word "Mode" used in the limited sense of a species of octave, has been fully elucidated in the seventh chapter. In ancient times, when only one Chromatic note was in use, the Murchhanās were used in their original forms without any alteration of the notes or the tonics. These were the Common-Tonic forms of Murchhanās. These presented great difficulties in practical use and gave place to Melas, which were Common-Initial forms of Murchhanās, Sa being the common initial for all Melas. This revolutionary change brought about a complete overthrowal of the ancient system. Shrutis having lost their original use and significance, it became almost impossible to ascertain the scale to which a Mela belonged. The scale of a Mela could now be ascertained only by the tonics, which had different positions in different Melas, to be determined from actual use. In order to facilitate the determination of the scale of a Mela, twenty tables containing the notes of Sa-initial Modes of all scales in just notation have been appended at the end of the seventh chapter. Coming to the Mela period we are faced with the difficulty, which at first sight looks insurmountable, that the number of Melas far exceeds the requirements of the ancient system, which recognised only four scales of diatonic character. Only seven Melas were sufficient for the purposes of that system, whereas we come across more than forty Melas, most of which are of peculiar combinations of notes inconsistent with the ancient system. Scientific explanation of the structure of all these Melas could be found only in the new theory of scales formulated in this treatise. Many lists of Melas varying in number from twelve to twenty, are given by different medieval theorists belonging to both the schools. These have been separately dealt with in three chapters, two of which are devoted to Melas of the Southern school. The Vikrita notes used by the northern writers are characterised as Komala (Flat) and Tivra (Sharp) as in Europe. In the southern school these notes are given peculiar appelations borrowed from the treatise of Sārngadeva. The words used by Sārngadeva did not indicate chromatic notes, but were intended

to explain the structure of his Sādhārana Grāma, which was misunderstood by the southern theorists. An explanation of this scale, which is very important inasmuch as it is identical with and most probably the source of the Shuddha Grāma of modern Hindusthānî music, will be found at the end of the eighth chapter. It should be pointed out here that though the Shruti allocations of the Scale of Origin of the southern school are the same as those of the ancient Shadja Grāma, it is not a diatonic scale like the latter. Taking into consideration the practical use made of the Shruti intervals that scale must be interpreted as a Chromatic Scale. Some difficulty was experienced in deciphering the structure of the southern Melas which are derived from this unusual scale. A special formula has been devised for the interpretation of these Melas. Satisfactory scientific explanation of all useful Melas has been found with the help of this formula. A formidable stumble is, however, encountered in the Melakartā scheme of the reputed southern theorist Venkateswara Dîkshit, popularly called Venkata Makhi. This is an ingenious device consisting of a symmetrical arrangement of notes, which is outwardly very attractive. The fallacy of this scheme is, however, apparent from the position of equality with Ma (natural), the sacred unchangeable note of ancient India, given to sharp Ma, which makes the ugliest dissonance with the initial note Sa. Modes having sharp Ma are rare and very difficult to sing. Not withstanding these facts, an equal number of Melas are allotted to both the Ma's, the other notes being common. The scheme consists of seventy-two Melas, of which only nineteen were, according to Venkata Makhi's own statement, in practical use in his time. His justification for the scheme was that the new Melas proposed by him might be used at some time in future. It is doubtful whether his expectation was ever even partially realized. Neither is his scheme comprehensive as he claimed it to be. But the greatest drawback of the scheme is that three-eighths (27) of the total number of the Melas have been found to be bad and scientifically inexplicable. That some of the proposed Melas have been found to be scientifically explicable

must be considered to be a mere chance. Authoritative critics of Southern India have already begun to doubt the utility of the scheme.

It is a remarkable fact that almost all Melas, stated by theorists of both the schools to be in actual use some time or other have been found to be scientifically correct. This fact proves two things: first, that the theory propounded in the present treatise is comprehensive enough to cover all the existing modes of Indian melody; and secondly, that the musical instinct which has been able to build up the superb structure of that melody may be relied upon to a great extent for advancement of the art. Even so, such a theory was a necessity, inasmuch as instinct is always blind and faltering and needs a corrective in order to ensure accuracy and inspire confidence, such as only scientific knowledge could do. It must, moreover, be remembered that a great deal of difference of opinion and controversy regarding the structure of many Rāgas exist and that a large number of Rāgas have been lost for good for want of a firm scientific basis. A sound theory only can remove all doubts and save the system from further deterioration,

The time-honoured custom is to call Melas after Rāgas. This custom has led to much confusion. We find that the same Mela is called by different names not only in different parts of the country but also at differerent periods in the same country. For example, Bhairavî of Lochana, that of modern Hindusthānî music, and that of modern Karnatik music stand for quite different Melas. Again, the Mela that is called Bhairavî in northern India is called Todi in southern India and the latter name is applied to a different Mela in northern India. This confusion is inevitable, because the same Rāga is called by different names and different Rāgas are called by the same name in different parts of the country. There is, further, difference of opinion about the Mela proper for a particular Rāga in the same part of the country. In order to avoid confusion, Melas have been called by the peculiar notes which characterize them. These are somewhat analogous to the Key-signatures of European music. But signatures

are usually understood to serve a purpose in Europe which is different from that for which they are used in Indian music, though they can be and are believed by some persons to serve the same purpose. But the Key-signatures are very limited in number and consist of either ats or sharps. Only Five Flat and one sharp Key-signatures are used as Mela-signatures. There are numerous other Mela-signatures, which consist of both flat and sharp notes. For example, Ro-Mi, Ro-Mi-Do and so on. These cannot be used as Key-signatures. Melas have been called after their signatures in this treatise. Thus No-Go Mela, Mi Mela, Ro-Po-Do Mela and so on. This method of naming Melas will, it is hoped, be found useful in every part of the country.

The number of Melas which were actually used in Hindusthanî music in the medieval period has been found to be twenty-six. Only fourteen of these have survived, twelve, most of which are Chromatic Melas, being lost in oblivion. Eleven new Melas have been added to the modern Hindusthānî system. So the total number of Melas now used in that system is twenty-five[4]. Of these seven are Primary Melas, four Secondary and fourteen Chromatic. Rāgas in some of these Melas are found to be based on mode-octaves which start with notes other than Sa, the proper mode-initial for all Melas. The notes of these Rāgas had to be so altered as to make Sa the mode-initial. The signatures of the Melas of these Rāgas were ascertained according to these altered notes. These signatures are not to be found in the current system. They include some notes which are not used in that system.

The scientific principles underlying the modern Rāga system of Hindusthān have been elucidated in the seven chapters of the first part and explanation of that system in the light of these principles have been given in the first six

4. The number of Melas mentioned by Bhatkhande and popularly accepted, is only ten. These are not, as we shall see, sufficient to cover all the Rāgas used in modern Hindusthanî music.

chapters of the third part of this treatise. The conception of Rāga has been shown to be the culmination of a process of evolution through long centuries. Though it had its origin in the Indian soil, just as harmony had its in the European soil, it has nothing either national or parochial in it. The system, if properly understood, will be found to be universally acceptable with necessary modifications in order to suit local needs of language and temperament. Attempts have been made to show in the following pages that the Rāga system holds a unique position in the melodic world and demands special attention from all true lovers of the musical art. Pure classical Indian music based on Rāgas is independent of poetry or language. Rāgas may be described as familiar recognizable patterns which can be stored in the memory and reproduced by voice or instrument and can be readily recognized when so reproduced by others. The individuality of Rāga is not like that of a particular song, for any number of songs can be composed in it, in different rhythms and styles and with different variations and embellishments without destroying its individuality. The difference between a poetic song and a Rāga-song is that a poetic song has no abiding pattern in it which can be distinguished from it; while in a true Rāga-song the pattern is supreme and its individuality is clearly distinguishable from and never over-shadowed by that of the particular song. It must, however, be pointed out that there are numerous so-called Rāga-songs composed by incompetent composers in which the Rāga pattern is not clearly discernible. It is not, therefore, always possible to appreciate the true spirit of a Rāga by merely learning a few songs in that Rāga. That appreciation can be had only by understanding the principles underlying the structure of the Rāga. Some observations made by Pramatha Nath Banerji, an eminent professor of classical Indian music of Bengal, made in the course of a letter written by him on 1st October, 1929, to the Committee on Indian music teaching in secondary schools of Bengal, may be quoted here.

".....A training in classical Indian music, if confined to songs only, will, I am afraid, be an apology for training. The simple reason is that: A student may be taught any number of songs without getting an insight into the spirit of music. To get at the spirit of the music, he must be made conversant with the principles, and not facts. The principle of classical Indian music is the sentiment and structure of the *rags*. The facts are individual songs which are derivations from the *rags* and can be deduced at will. A knowledge of facts only is at best imperfect knowledge. It is the knowledge of the parrot or the gramophone..."

".....I would, therefore, humbly advise the authorities concerned to instruct boys primarily in the *rags* which constitute the very source of Indian music. The *rags* may be learnt irrespective of language—and would present obstacle to no creed, caste or colour. Songs if at all necessary may be introduced later on as supplement. Pure higher Indian music is always divorced from poetry."

The learned professor does not, unfortunately, give any indication of the method to be adopted for teaching Rāgas. An instrumentalist himself he presumably contemplated the method of teaching them through instruments. A stringed instrument of the Veena type with moveable frets is well-suited for this purpose. But the foremost and the most important thing required for learning Rāgas is full instruction about their structure. Descriptions of Rāgas are found in all books on musical theory. These are almost invariably incomplete and faulty. The descriptions given in the fifteenth, the sixteenth and the seventeenth chapters of this treatise, which embody the scientific principles underlying their structure will, we believe, be found to be adequate and complete.

Study of the earlier stages of Indian melody shows that the modern melodic system differs widely from the original system, as it is known to us. Rāgas did not exist in the ancient system. The word "Rāga" is rarely used in the most ancient works on music. It is mentioned only twice in the Nāradiya Shiksha, the earliest known book on Indian music. It also

occurs the same number of times in the Bhāratiya Nātya Shāstra, a later work. In both these ancient books the word is used in a sense quite different from its modern significance. It came to be used in its modern sense several centuries later. The rudiments of Rāgas are to be found in the seven modes of the Nāradiyā Shikshā. But their real forbears were the seven original Jātis, which were later on enlarged to twenty-one, in the time of Bharata. Some of the ten characteristics of Jātis are still to be found in the modern Rāgas. The basic scales used in the Jātis have largely increased in number in the modern scheme. That potent instrument of expression—omission of particular notes—was used as elaborately in the Jāti system as in the modern Rāga system and that with almost scientific precision. Transilient scales have been used for hundreds of years not on account of inability to sing the small interval of a semi-tone as Helmholtz supposed, for there are transilient scales in which those intervals are left undisturbed. Omission of notes is a rule of melody based on purely scientific necessity and indispensable for the true expression of most Rāgas as we shall see.

Limitation of a Rāga within an octave of a scale is another rule of melody, which is found to be applied in the Jāti system in a limited manner. The full implication of this limitation was appreciated some time later, when Murchhanās came to be accepted as the basis of all melodic structure. Real beginning of the Rāga system may be said to have begun with the introduction of Murchhanās in the melodic art. Inspite of the fact that they were essential for the structure of Rāgas, they eluded musicians so long as the tonics were common and individual Murchhanās were determined by the changing mode-initials. This difficulty was largely removed by the substitution of common-initial modes made possible by the introduction of chromatic (Vikrita) notes. The character of the Murchhanās and the need for the introduction of Vikrita notes and common-initial Murchhanās have been explained in the seventh chapter. This transformation of common-tonic modes to common-initial ones was accomplished

by the revolutionary introduction of Samsthānas or Melas referred to above.

The importance of Nyāsa or cadence-note and its aesthetic effect appear to have been understood since the earliest times. Prominence is found to be given to two notes as Nyāsa in the instrumental compositions discovered in the Kudimiyamalai rock inscription, which embodies melodies based on the seven modes of the Nāradiyā Shikshā. This importance of the Nyāsa note is almost supreme in the Jāti system, as we find that the seven original Jātis of Bhāratiya Nātya Shāstra are named after the seven notes of the Indian gamut, which are the Nyāsas of these Jātis. In modern Hindusthanî music the last stroke of Dhā on the accompanying drum, which is expected to produce great effect on the listener, is placed on the Nyāsa note at least in all good compositions.

The completion and perfection of the Rāga conception is found in the two concluding phrases, which are popularly called "Khās Tānas" or "Pakad". They have been called "Rāga Tānas" or "Vishishta Tānas", i.e. characteristic phrases. These phrases, like the face of a human being, mark out the individuality of a Rāga. They are perfect phrases based on what have been called Melodic or Dissonant Triads as distinguished from Harmonic or Consonant Triads. These phrases formed parts of popular tunes of different parts of the country and were incorporated in the "Mārga" or orthodox system of music, on account of their intrinsic beauty. Rāgas are often found to be named after the localities from which their characteristic phrases were collected. "Mārga" music appears to have borrowed profusely from "Deshî" music. This process of assimilation began from the earliest times. "Deshî" or popular tunes were raised to the dignity of "Mārga" music whenever it was found possible to apply to them the rules of art of the orthodox system. In fact, the whole Mārga music was so much imbued with elements of Deshî music that the famous ancient theorist Matanga named his book "Vrihaddeshî" or the great Deshî, characterizing all Rāgas, including the oldest Grāma Rāgas, as "Deshî".

Some of the salient feature of Rāgas have been indicated above. These and other special traits which constitute the character of a Rāga have been put under seven categories. These have been called the seven 'Lakshanas' or characteristic features of Rāgas. They include some of the features of the ancient Jātis, embodying all the principles which underlie the structure of a modern Hindusthanī Rāga. Elucidation of the significance of these features and the scientific principles on which they are based will be found in the thirteenth and the fourteenth chapters. All these features have been carefully delineated in portraying each Rāga dealt with. The relationships of notes used in a Rāga have in each case been shown, according to the ancient Indian custom, in terms of Anushrutis instead of Shrutis. If the Lakshanas are carefully attended to, a student is expected to form a clear idea of the character of the Rāga and to be able to sing it even without the help of the words of a song. Illustrative appropriate songs given in the descriptions of some difficult or disputed Rāgas will be found helpful in forming correct notions of these Rāgas. Compositions of great masters (Tānasena and others) have, so far as possible, been selected for this purpose.

One of the main objectives in this treatise is to ensure just intonation in singing and playing music. It is impossible to train the ears in notes of just intonation or to learn to sing them with the help of equally-tempered keyed musical instruments. Much success in these directions may indeed be achieved by those few persons who possess an instinctive faculty by which they can without the help of any instrument produce subjectively all notes that have consonant relationship with each other. There is no doubt that great progress in the musical art has been made by such talented persons. But so far as the average man is concerned the aforesaid objects can be attained only by the aid of specially prepared musical instruments which can produce

objectively the sounds of the notes of the fifty-three Anushrutis.[5]

The number of Rāgas dealt with in this treatise is seventy. Of these forty-nine are based on Primary Scales, sixteen on Chromatic Scales and only five on Secondary Scales.

The most difficult Rāgas are those which are based on

5. A scheme has been prepared in Appendix B for the construction of a standard stringed instrument of the Veena type with moveable frets which can be adjusted to any of the fifty-three degrees of a graduated scales and thus produce the sounds of all the Anushrutis. Instruments can be constructed according to that scheme and made available to students of music if demanded. Until such instruments are available, commonly used instruments of the Veena type (Sitar, Esraj etc.) can be easily so adjusted as to produce fairly accurate notes of the fifty-three Anushrutis. The following procedure may be adopted for the purpose. The four fixed notes of the Primary First Scale (Diatonic Major Scale) Ma_1, Sa, Pa and Ra^1 are to be placed on the instrument with the help of a common pitch-pipe, the four notes of which are tuned in consecutive Fifths. The note Ma_1 of the lower octave is placed on the lower bridge and the others on frets. The notes Ma_1 and Ra^1 are then to be placed an octave higher and an octave lower respectively in order to have the notes Ma and Ra of the octave. The interval between Sa and Ra, which is a Major tone, is now to be divided into nine equal parts in order to have the first nine Anushrutis of the mid octave. The note eight Anushrutis above Sa, which is called Rā, is the distinctive note of the primary Fourth scale (Diatonic Minor Scale) and the lowest of the four fixed notes of that scale. The note placed a Fifth above Rā is Dha. Descending by an octave we get Dha_1 of the lower octave. The two consecutive Fifths above Dha_1, will be Ga and Na of the mid octave. We will thus get all the original notes of the two scales, Sa and Pa being the Amsas of the First Scale and Dha and Ga those of the Fourth. Finally, the major tones between Ma and Pa, and between Dha and Na are to be divided into nine equal parts each ; the minor tones between Ra and Ga, and between Pa and Dha are to be divided into eight equal parts each : and the semitones between Ga and Ma, and between Na and Sa^1 are to be divided into five equal parts each. We will thus get all the fifty-three Anushrutis. These are to be marked on a slip of paper, which is to be attached to the body of the instrument just below the frets. A required note can be sounded on the instrument by shifting a movable fret to the Anushruti-mark representing that note.

Chromatic scales. Confusion is often made by musicians on account of the use of Melas in which flat notes are used to represent notes that are in reality sharps of the preceding notes. For example, the note Ro in RoMi Mela stands for Si—a note which is Minor Third below Ga and not Major Third below Ma.

In conclusion, we give below a brief resume of the history of the growth of harmonic music in Europe in order to understand its relationship or contrast with the melodic music of India. The first step towards polyphony, the percursor of harmony, may be said to have been taken when two persons of different voice-registers were made to sing together, one taking notes Fourth or Fifth above or below the notes of the principal melody sung by the other voice. This was known as Organum or Diaphony and was invented on the analogy of magadizing, a practice almost universal. The real beginning of polyphony was, however, made with what came to be known as Discant in the eleventh century A.D. This was a system in which two different melodies were so manipulated as to make them rather pleasant to hear when sung by two different voices simultaneously. While speaking about compositions of this type Prof. Helmholtz observes that "such examples could scarcely have been intended for more than musical tricks to amuse social gatherings." This device was evidently a chance invention in no way related to the needs of the melodic art of the time and must have been looked upon as nothing more than a curiosity. It was, however, soon discovered that this device was calculated to satisfy the congregational feeling of the Christian Church, inasmuch as it afforded an opportunity to different kinds of voice for participating in a common prayer. The church, therefore, readily adopted the principle involved in this device and applied it to congregational music. The art of 'counterpoint' was soon developed and in a few centuries an elaborate system, known as 'polyphony', was evolved. This system reached its perfection in the 16th Century A. D. A polyphonic composition usually consisted of four parts allotted to four different kinds of voice, so that all could sing together,

each singer taking up the melody suitable to his or her own voice-register. One of the Gregorean tunes, which now came to be called the *Canto Fermo* (*i.e.* the fixed melody), was sung by a voice-part called the *tenor*, which was the lowest but one in pitch. Being sung together with two other melodies of higher pitch, viz, those allotted to the *alto* and *soprano* voice-parts, the principal melody of the *Canto Fermo* lost much of its prominence and effect. In fact, the sole aim of the polyphonic art soon came to consist of bringing about such perfect equality of the several voice-parts that no single part would appear more important than any other. The more this object was attained the greater was the unity of the composition as a whole accomplished. Such culmination was reached about the end of the 16th Century in the compositions of the great master Palestrina. Mr. W. S. Rockstro says about these compositions that "we feel not only that every part is necessary for the wellbeing of the whole, but that it is absolutely impossible to say in which part the chief interest of the composition is concentrated." A great and wonderful art was thus brought into being. But, it must be observed that this achievement was made at the sacrifice of another great art, viz., melody. A system, which insists on only such adjustment of its several parts as would make them fit in with each other in order to produce a general effect by the unified whole, can seldom afford to bestow that undivided attention to a single part which is essential for the perfection of that part. The individual melodies of the polyphonic texture must, therefore, have necessarily been more or less poor in their aesthetic appeal. Such a state of things is least conducive to the development and perfection of individual melodies. This aspect of the new art in the zenith of its glory was, however, lost sight of for some time by the musical public. But innate predilection for solo music reasserted itself, bringing about a revolution in the musical art of Europe at the end of the 16th century. This was known as the monodic revolution originated by Montevarde. The immediate circumstance which

led this and other artists of the time to introduce 'monodia' was the revival of the dramatic art on the model of Greek tragedies. It was now realized that the time-honoured polyphonic music was ill-suited for producing dramatic effects. The revolution, however, came rather too late. The fine melodies of medieval Europe had lost their hold on the popular mind and the old modal system on which they were based had been modified beyond recognition by the exigencies of the polyphonic art. Having lost most of the resources on which a melodic art worth the name might be built, she had to embark on her unknown career with a halter on her neck. For, though ostensibly a monodic revolution, it cannot be said to have paved the way for her complete emancipation. It was properly speaking a harmonic revolution, inasmuch as it was destined to bring that freedom from all melodic bondage to polyphony which caused its name to be changed to 'harmony'. In the beginning there was a sort of compromise, the melody being attached to the highest soprano part to be sung by the human voice, and the other parts composed on new harmonic principles being set apart for instruments. According to these principles a harmonic composition was to be regarded as a combination not of melodies but of 'chords'. This vital difference between polyphony and harmony is sometimes expressed as 'horizontal' and 'vertical' treatments of music. Harmony now became an independent instrumental art. Melody, on the other hand, though it acquired a certain amount of prominence, never again became a truly independent art in Europe, inasmnch as it became almost invariably wedded to harmonic ideas. Europeans henceforward became so much obsessed with these ideas that so great a writer as Tartini asserted that melody was the offspring of harmony, oblivious of the fact that melody existed thousands of years before harmony was conceived. Treated as a limb of polyphony, melody had her ancient resources already crippled according to the needs of that art. Associated with harmony it had now to stand on the slender resources of that art, viz., the Major and the Minor Scales.

From what has been stated above regarding the growth *of the melodic art in India,* it would be abundantly clear that melody as an art needs no support or help from harmony. It would be only reasonable to hold that the two arts are quite independent of each other. In fact, the two arts start on quite contrary fundamental ideas. For, it is not difficult to understand that if there is any purpose in sounding notes consecutively, that purpose is completely frustrated by sounding them simultaneously. The two processes cannot be followed at the same time without more or less spoiling the effects of both. The concentration that is required for a true appreciation of the effects of each of these processes is impossible if both of them are combined together. That sort of composition which seeks to combine them cannot, therefore, serve any great or noble purpose. There is, no doubt, a large body of opinion in favour of harmonization of melody. But, there are also strongly expressed contary views of competent Europeans. We give below the transcription of some remarkable sentences of the renowned Dr. Burney made by Cap. Willard in his book on Hindusthānî music.

"Upon the whole, therefore, it seems demonstrable that harmony like ours was never practised by the ancients; however, I have endeavoured to show that the stripping their music of counterpoint does not take from it the power of pleasing, or of producing great effects; and in modern times, if a Farinelli, Gizziello, or a Cafarelli, had sung their airs wholly whithout accompaniment, they would perhaps have been listened to but with still more pleasure. Indeed, the closes of great singers made wholly without accompaniment are more attended to than all the contrivance of complicated parts, in the course of the airs which they terminate.

"An elegant and graceful melody exquisitely sung by a fine voice, is sure to engage attention, and to create delight without instrumental assistance, and in a solo composed and performed by a great master, the less accompaniment is heard the better."

PART I.

SCIENTIFIC BASIS OF MELODY.

CHAPTER I.

Notes and Notation

(Swara and Swaralipi).

A. Nomenclature of notes.

The universal custom of framing a scale with only five to seven notes within the compass of an octave is attributable to the fact that it is not possible to put more notes within that compass without hurting the musical sense. The occasional use of an extra note or two in melodies is not an exception to this rule. For, it will be observed that in these cases two different groups of notes are used in ascent and descent and that each group does not contain more than seven notes. In other words, a note or two in these melodies will be found to be used exclusively in ascent, while in descent notes flatter or sharper than these by a semitone will be substituted for them. A more misleading instance of apparent exception to the aforesaid rule is one in which in the course of a certain movement, whether ascending or descending, an additional note is used as an ornament to a particular note of a melody. In such cases it will be observed that the extra note can be dispensed with without materially affecting the character of the melody. This fact goes to show that the said note is not essential for the scale in which it is used. It will be further observed that the note is never used in direct movement but always in what is called oblique movement (vakra gati). That is to say, it invariably follows the note, to which it is an ornament, and returns to it, thus making a backward movement. This movement shows that the note belongs to a different scale, which is descending in character if it is used in ascent and of an ascending character

if it is used in descent. There is, therefore, no doubt that, according to universal practice, the maximum number of notes used in a scale is seven. A lesser number is sometimes used in a melody. Thus, many Indian melodies contain six or five notes. Scotch and Chinese melodies are also found to be composed in scales of five notes. But, notes identical with the notes of these scales invariably occur in other scales of seven notes. They must, therefore, be considered as only incomplete forms of some full scales.

The relative position of a particular note in a full musical scale of seven notes is indicated by the word 'degree' on the similitude of a graduated scale. One or more degrees of a particular scale must differ in position from the corresponding degree or degrees of another scale ; as, otherwise, there would be no distinction between the two. The same degree may, therefore, have more than one different positions, excepting of course the first degree, which being the starting point, must be considered to be always fixed in position. If all the different positions of the other six degrees of a scale were given distinct names we should have a large number of names, which would create great inconvenience and confusion. This is avoided by the almost universally followed custom of considering a particular scale as the original or starting scale. This scale is called the 'natural' or the 'shuddha' (pure) scale ; and its notes 'natural' or 'shuddha' notes. All other scales are considered to be derived from it. Their distinctive notes, which are considered to be derived from notes of the original scale, are called 'chromatic' or 'vikrita' notes. The word 'natural' or 'shuddha' applied to a scale or a note is rather misleading ; for, it would be wrong to suppose that one scale or note is unnatural or less natural than another or impure or less pure than that. We should, therefore, prefer to call the starting scale the 'Scale of Origin' (*Mula* Grāma) and its notes original notes (*Mula* Swaras). The notes of the starting scale are expressed in writing by means of seven letters of the alphabet, which differ in different countries. The derivative notes also are indicated by the same letters, with distinctive signs attached to them. They are either

higher or lower than the original notes and are called 'tîvra' or 'sharp' and 'Komala' or 'flat' notes respectively. As three sharp and three flat positions are possible for a single note, it may have altogether seven different positions including that of the original note. Theoretically speaking, therefore, we may have seven times seven, that is to say, forty-nine notes of different positions in the scale. Only thirty-one of these together with two double-flat notes are, however, sufficient for expressing music in just intonation.

The names of the seven notes used all over India from the most ancient times are Shadja, Rishabha, Gāndhāra, Madhyama, Panchama, Dhaivata and Nishāda. In notation and solfeggio they are abbreviated to Sa, Ri, Ga, Ma, Pa, Dha and Ni (स रि ग म प ध नि). These are not notes of absolute pitch like the corresponding notes of European music C, D, E, F, G, A and B, though they may be fixed to these pitches if required. In this respect they are akin to the notes Do, Ray, Me, Fa, Sol, La and Te of the Tonic Sol-fa system. These letter-notations have the twofold advantage of being both visible and pronounceable. The staff notation, which is widely used in Europe and is almost indispensable for writing harmonic music, is not quite suitable for vocal melody as it is only a visible notation and cannot be used in solmization. It has, therefore, to be invariably implemented by a letter-notation. It must, however, be pointed out that the latter kind of notation too cannot be considered a perfect one for vocal music unless every note-sign in it has got a distinct pronunciation. For that end each note of the notation must be represented by a separate syllable. A syllable is not only pronounceable, but has also the further advantage of being capable of indicating by means of its two component parts, the consonant and the vowel, the two essential features of a musical note, viz., its degree in the scale and its position in relation to the original note of that degree. In this scheme a consonant, which cannot be pronounced without a vowel, will not stand for any particular note; but, will do so only when coupled with a vowel to form a complete

syllable. Thus, the letter R or D would simply indicate that the note concerned is the second or the sixth degree of the scale and nothing more. The actual position of the note in the scale would remain unknown until a vowel is attached to it. It, therefore, follows that an original note too must always have a vowel-sign for it just like its derivatives. Seven vowels would, thus, be required for the seven possible positions of a particulal degree. No alphabet, however, possesses more than six pure vowels; and one of these is almost unfit for musical notation. Diphthongs will, therfore, have to be included within the required number of vowels. The pure vowels are ă (as in 'fall), *a* (as in 'far'), â (as in 'day'), *i* (as in 'pit') *o* (as in 'no') and *u* (as in 'put')[1]. If

1. The earliest record of the use of vowels with consonants as musical signs is to be found in the rock-inscription discovered in 1904 at Kudimiyamalai in Pudukottai State, Southern India. In this inscription, which is in characters of *circa* 7th century A. D. the four vowels ă, *i*, *u* and â are used with the initial consonants of the seven notes of the Indian gamut in a series of musical phrases of four notes, which appear to be intended for the *vîna*. That these vowels were not used as accidentals is clear from the fact that they are throughout combined with all the notes indiscriminately, e. g., मिगसेनु रगिधुने गिसनेपु. Rao Bahadur P. R. Bhandarkar, who has edited this inscription in Vol. XII of Epigraphia Indica, supposes that the vowel-endings may indicate particular ways of plucking the strings of the *vîna*. The use of vowels as musical signs may be said to date from the time of this inscription and probably from an earlier period. But, their use as real accidentals, so far known, begins from the time of Govinda Dîkshit and his son Venkateshwara Dîkshit, renowned musicians of Southern India, who lived about the middle of the 17th century A. D. The latter, in his well-known treatise named *Chaturdandi-prakāshikā* uses the three vowels ă, *i*, and *u* as accidentals for his notes in devising his novel scheme of seventy-two *melas*. These, however, he does not recommend for use in solmization. In the Tonic Solfa system, which came into being about the middle of the last century, all the six vowels were brought into use as accidentals. There is, however, no uniformity in their use in this system, the vowels *a*, â, *i*, and *o* or their equivalents in pronunciation being used for the

the last one is left out as unfit for constant use in melody, the remaining five may be arranged in the following order :

o ă a â i

The vowel *a* placed in the middle, which gives the most open and clear sound, will be used in the present treatise as the sign for an original (natural) note. The two vowels on the left side of it, viz., ă and *o* which require the lips to be drawn closer and closer together in order to pronounce them and produce the sensation of gradually increasing dullness of sound will be taken for two of the flat accidentals. The two vowels on the right side of *a*, viz., â and *i*, which require the root of the tongue to be pressed closer and closer to the palate for pronouncing them and produce the sensation of gradually increasing keenness of sound, will be used for two of the sharp accidentals. The flattest accidental will be represented by the diphthong ă*o*, which is the combination of the above mentioned two flat accidentals, inasmuch as the extent of its flatness from the original note is exactly the same as that of these two taken together. For similar reasons the sharpest accidental will be represented by the diphthong â*i*, the combination of the other two sharp accidentals. The signs placed over a vowel, ă and â will indicate a very small interval of great importance in music in just intonation called 'comma'. The first of these with its curved base downwards signifies flatness by one comma and the second with its pointed head upwards signifies sharpness to the same extent. A vowel-accidental will be flattened to the extent of a comma if the first of these signs be placed over it,

natural notes, ă and *u* for flats and â and *i* for sharps. Krishnadhan Banerjee, court-musician of Cooch Behar Rāj, in his Bengali book on music named *Gîtasutrasāra*, published in the eighties of the past century, devised a notation in Bengali characters on the model of the Tonic Solfa. In this notation he uses the vowels ă, o and, î as the natural, the flat and the sharp accidentals respectively. This notation, which does not appear to have received the recognition it deserved, has been further developed in the present treatise, so as to make it suitable for just intonation.

and sharpened to the same extent if the second be put over it. So, the combined accidentals ăo (अओ) and âi (एइ) will be written in the abbreviated forms ŏ (औ) and î (ई) respectivly, but always pronounced as usual like these diphthongs[2]. The following terms will be used to indicate the different positions a degree will have on addition of the above mentioned vowel-accidentals to the pure consonant of that degree :

1.	ŏ (औ)	...	...	Low flat (*ati-Komala*)
2.	*o* (ओ)	...	...	Flat (*Komala*)
3.	ă (अ)	...	...	Low (*neecha*)
4.	*a* (आ)	...	...	Original (*Mula*)
5.	â (ए)	...	...	High (*uchcha*)
6.	*i* (इ)	...	...	Sharp (*teevra*)
7.	î (ई)	...	...	High Sharp (*ati-teevra*)

The seven undefined degrees of the scales will be represented by the initial consonants of the names of the notes, viz, S (स्), R (र्), G (ग्), M (म्), P (प्), D (ध्), and N (न्). The original notes, i.e. to say, the notes of the Scale of Origin will, therefore, stand thus :—

Sa	Ra	Ga	Ma	Pa	Da	Na
सा	रा	गा	मा	पा	धा	ना

Illustrations of notes in all the seven position of degrees, as they will appear in writing, are given below :

	In Roman Script		In Devanāgri Script		
1.	Low flat N...	Nŏ	*Atikomala* न्	...	नौ
2.	Flat G ...	Go	*Komala* ग	...	गो
3.	Low R ...	Ră	*Neecha* र्	...	र
4.	Original P...	Pa	*Mula* प्	...	पा
5.	High D ...	Dâ	*Uchcha* ध्	...	धे
6.	Sharp M ...	Mi	*Teevra* म्	...	मि
7.	High Sharp M...	Mî	*Ati-Teevra* म्	...	मी

2. In Indian scripts a vowel is so attached to a consonant as to form a single letter, thus taking almost the same space as that of the consonant. Comma-signs will not be required in Indian notation.

The inconvenient vowel *u* (उ) will be used for the double-flat accidental, which will be required on some occasions, e.g., Nu (नु), or Noo, which will be more expressive of double-flat.

A note of double the number of vibrations of a particular note is considered to be identical with it and is said to belong to a higher octave (*tāra sthāna*). The number 1 after a note and above it will indicate that the note belongs to the next higher octave, e.g., Ma^1 ($मा^1$), $Dâ^1$ ($धे^1$) etc. Placed below a note it will indicate the next lower octave, e.g., Go_1 ($गो_1$), Pa_1 ($पा_1$) etc. The second, the third or other higher octaves will be indicated by the numbers 2, 3, etc. above the notes, e.g., Sa^2 ($सा^2$), No^3 ($नो^3$) etc. The lower octaves will be indicated by similar numbers below the notes, e.g., $Rĕ_2$ ($रे_2$), $Mî_3$ ($मी_3$) etc.

B. Scale of Origin and Relative Positions of Notes.

Determination of the actual pitches of notes has no significance in the theory of music inasmuch as it has to deal with their mutual relationships only. A note-name, therefore, need not be associated with absolute or fixed pitch, *i.e.*, to say, pitch produced by a specified number of vibrations. It is sufficient for the purpose of securing correct intonation that the positions of notes in a scale are ascertained accurately with reference to that of a starting note. The actual pitches of these notes may be determined at will without disturbing their mutual relationships by fixing the starting note to the required pitch for the time being[3].

3. As regards fixed pitches, it may be pointed out that the training of students with the aid of instruments with fixed Key-boards is not conducive to the growth of the musical faculty; because, firstly, these instruments being tuned to a tempered scale are not correct in intonation, and secondly, fixed tones, if allowed to create a permanent impression on the memory of a student, prevent the conscious direction of his mind towards their mutual relationships. To avoid this difficulty the Tonic Sol-faists introduced what was called the 'movable Do' in their system of teaching music. That difficulty, however, never arose in India, as Keyed instruments were unknown here before their importation from Europe in the past century.

In order to ascertain the correct positions of notes in a scale, it is required to know, in the first place, the scientific relationships of the notes of the Scale of Origin to its starting note, and, in the second place, the exact distances of the derivative notes from the original notes as signified by their accidentals.

The scale taken as the Scale of Origin in this treatise is that used in Rāga Kedāra of Northern India without the sharp Fourth sometimes wrongly used in it and known as the *Shuddha Grāma*. It is identical with the Diatonic Major Scale of Europe and also with the *Madhyama Grāma* of ancient India[4]. Some idea of their identical character may be formed from the similarity of arrangement of the intervals between the consecutive notes of these scales. Roughly speaking, there are two kinds of these intervals, called tones and semitones, the latter being nearly half of the former in length. Each of these scales contains five tones and two semitones, arranged in the following order: tone, tone, semitone, tone, tone, tone, semitone. The three scales are shown below for comparison with the semitones marked overhead in each. The Madhyama Grāma is started with its fourth note Nishāda in order to make it coincide with the other two scales. Small letters have been used for the notes of this ancient scale, so that they may be distinguished from those of the modern scale, which has undergone change in its arrangement of tones and semitones.

Scale of original:	Sa	Ra	Ga	Ma	Pa	Da	Na	Sa[1]
Madhyama Grāma:	n	s	r	g	m	p	d	n
European Major Scale:	c	d	e	f	g	a	b	

4. The Shuddha Grāma is wrongly identified by some writers with the *Shadja Grāma* of ancient India. The word '*grāma*', which is equivalent to the English word 'scale' has almost no significance to the Indian musician of the present day; as, in fact, it is seldom used by him except perhaps in connection with the Shuddha Grāma. The word '*Thāt*' or '*Mela*' conveys a different idea. The scale of Bilāval is different from that of Kedāra, though both have the same '*Thāt*'. The Shuddha Grāma of Southern India, called *Kanakāngi*, is a quite different scale.

The scientific grounds for considering these scales identical will be understood when their structure will be elucidated in succeding chapters.

The relationship of two notes is represented by the ratio of their vibration numbers. The pitches of the notes of a scale must, therefore, be arbitrarily fixed for the time being for the purpose of ascertaining their interrelationship. Supposing the pitch of the starting note Sa to be indicated by twenty-four vibrations, the pitches of the several notes of the Scale of Origin will be indicated by the following numbers :

Sa	Ra	Ga	Ma	Pa	Da	Na	Sa^1
24	27	30	32	36	40	45	48

The first thing we have got to know about a note is its relationship with the starting note. This will be represented by the ratio of the vibration-number of the former to that of the latter. Thus, the relationship of *Ga* to *Sa* is expressed by the ratio 30 : 24 or in small numbers 5 : 4 which is also written as $\frac{5}{4}$. The ratios of the notes of the scale to the first note are given below, the latter being represented by unit.

Sa	Ra	Ga	Ma	Pa	Da	Na	Sa^1
1	$\frac{9}{8}$	$\frac{5}{4}$	$\frac{4}{3}$	$\frac{3}{2}$	$\frac{5}{3}$	$\frac{15}{8}$	2

These ratios are of great importance in musical theory, inasmuch as, they indicate the relative positions of the notes in the scale and enable us to ascertain the actual pitches of the notes, if we are given the vibration-number of the starting note. To find out the pitch of a particular note we have only to multiply the vibration-number of the starting note by the fraction representing its ratio to the latter note. Thus, if the vibration-number of *Sa* be 208, that of *Ra* will be $208 \times \frac{9}{8}$ or 234, that of *Ga* $208 \times \frac{5}{4}$ or 260 and so on.

The positions of the notes of the Scale of Origin in relation to its starting note having been ascertained, we are now in a position to indicate the extent to which the position of one of these original notes is to be altered in order to arrive at a derivative note. But, before doing so it is necessary that we should have an idea about the distance at

which an original note is placed from its next preceding and next following notes. This brings us to the consideration of the relationship between the consecutive notes of the scale That relationship is represented by the ratio of the vibration-number of the higher note to that of the lower one in a pair of consecutive notes. The ratios of the several pairs of consecutive notes in the scale so arrived at are given below :—

Sa		Ra		Ga		Ma		Pa		Da		Na		Sa[1]
	$\frac{9}{8}$		$\frac{10}{9}$		$\frac{16}{15}$		$\frac{9}{8}$		$\frac{10}{9}$		$\frac{9}{8}$		$\frac{16}{15}$	

The ratios are here placed between the consecutive notes in order to show that each of them represents the relationship of the two notes between which it is placed and that it has nothing to do with the starting note. It will appear that there are three kinds of relationship between consecutive notes, represented by the ratios $\frac{9}{8}$, $\frac{10}{9}$ and $\frac{16}{15}$. The first of these ratios is slightly larger than the second, their difference being represented by the small fraction $\frac{81}{80}$ ($\frac{9}{8} \div \frac{10}{9}$). The intervals between notes related in these ratios, being nearly equal, are given the same name 'tone' (*swana*). They are distinguished from each other by the qualifying words 'major' (*āyata*) and 'minor' (*laghu*). The small interval ($\frac{81}{80}$), which is their difference, is called a 'comma' (*anu-swana*). The third ratio $\frac{16}{15}$ represents an interval which is roughly speaking half of the aforesaid two intervals, and is commonly known as a 'semitone' (*ardha-swana*). There is another 'semitone' (*ardha-swana*), used in some scales, which is larger than the latter by a comma and is, therefore, represented by the ratio $\frac{27}{25}$ ($\frac{16}{15} \times \frac{81}{80}$). The larger one, which has hitherto remained unnoticed, will be called 'major semitone' (*āyata ardha-swana*) and the smaller one 'minor semitone' (*laghu ardha-swana*).

To come now to the derivative notes, the first of the flat ones termed 'low' is arrived at by lowering an original note by a comma and the first of the sharp ones called 'high' is similarly arrived at by raising the original note to the same extent. The second of the flat notes called simply 'flat' is

arrived at by lowering the original note by the interval represented by the ratio $\frac{25}{24}$, which is almost exactly half of a major semitone and one-third of a major tone. The second sharp note, called simply 'sharp', is arrived at by raising the original note to the same extent. The 'low flat' and 'high sharp' notes are arrived at by lowering and raising the flat and the sharp notes respectively by a comma, or, in other words, by lowering and raising the original note by the interval $\frac{135}{128}$ ($\frac{25}{24} \times \frac{81}{80}$). In order to get the vibration-number of a flat note, that of the original note is to be divided by the ratio of the flattening interval, and conversely, it has to be multiplied by the ratio of the sharpening interval in order to arrive at the vibration-number of a sharp note.

C. Notation.

The notes dealt with above are intended for expressing and writing music in just intonation. The fine distinctions of these notes are needed for scientific interpretation of music. Music, however, existed all over the world ages before such interpretation became possible after the discoveries in the science of acoustics were made about the middle of the eighteenth century A. D. In ancient India positions and relationships of notes were ascertained by means of Shrutis. That system, however, subsequently proved inadequate for explaining the structure of some scales and modes which had to be incorporated with the ancient system owing to impact with non-Aryan cultures. This circumstance brought about a sort of revolution in the world of music in India about the fourteenth century A. D., which gave rise to the modern Mela system, in which the Shrutis lost their ancient significance. The scale was divided into twelve equal parts and the twelve notes resulting from such division, including the seven original and five derivative notes, were used for constructing numerous Melas by different combinations. This division of the scale is analogous to what is known as semitonic equal temperament in European music. The notes used in the Mela system do not indicate the correct scientific positions of

notes explained in the preceding pages. But, as all modern music is expressed by means of these notes, there must be two kinds of notation, one for the purpose of understanding music in its present condition and expressing it with approximate correctness in the traditional method, with which the common votary of music is familiar, and the other for studying music on scientific lines and expressing it correctly in just intonation. The former has been called "Semitonic Notation" and the latter "Just Notation" in the present treatise.

The twelve notes of Semitonic Notation are insufficient for expressing properly some of the modes which are used in Indian Music in improper forms. These modes belong to scales referred to above, which were introduced into Hindusthānî Music in the middle ages. Eleven additional notes are required for expressing these modes. These are extraordinary notes coincident with nine of the ordinary notes. Four of these twenty-three notes are not required for expressing music in just intonation. Fourteen out of the remaining nineteen notes have to be inflected by a comma in order to have the full number of thirty-three notes required for expressing music in just intonation. The thirty-three notes of Just Notation required for expressing in just intonation the modes of all scales, and also the twenty-three notes of Semitonic Notation required for expressing all Melas, which represent those modes are given below.

(a) Thirty-three notes of Just Notation for Modes:

Originals—Sa, Ra, Ga, Ma, Pa, Da, Na

Derivatives:—Flats—So, Ro, Go, Mo. Po, Do, No
Sharps—Si, Mi, Pi
Double Flats—Goo, Noo

Inflexions : Originals
Low—Ră, Gă, Pă, Nă
High—Mâ, Dâ
Flats:
Low—Rŏ, Gŏ, Pŏ, Nŏ
High—Dâo
Sharps:
High—Rî, Mî, Dî

The exact positions, in the scale-octave, of these thirty-three notes have been shown in the table appended to the third chapter. Their use in the modes have been shown in twenty tables appended to the seventh chapter.

(b). Twenty-three notes of Semitonic Notation for Melas :

Originals—Sa, Ra, Ga, Ma, Pa, Da, Na

Derivatives :

Flats—*Ro*, *Go*, Mo, Po, *Do*, *No*
Sharps—Ri, Gi, *Mi*, Pi, Di
Double Flats—Goo, Poo, Doo, Noo
Double Sharp—Mii

Use of the sixteen derivative notes of Semitonic Notation will be found in the signatures of Melas given in the Table of Melas in the ninth chapter. The five derivative notes ordinarily used have been italicized.

It has to be pointed out that true coincidence of notes is to be found only in Semitonic Notation. There are no coincident notes in Just Notation. When a note of Semitonic Notation is said to be coincident with a note of Just Notation, the coincidence is not real but only conventional.

Comparison of the two kinds of notation will show that the names of seventeen notes are common to both. All the uninflected notes of Just Notation are to be found in Semitonic Notation except So and Si. The six notes Ri, Gi. Di, Mii, Poo and Doo are not used in Just Notation. Of these the two notes Ri and Di will be found in the latter notation in their inflected forms Rî and Dî. For converting Semitonic Notation into Just Notation the remaining four of these six notes Gi, Mii, Poo and Doo have to be left out and these and other coincident notes have to be replaced according to need by the notes with which they are coincident. Further, the two notes Si and So not included in Semitonic Notation are to be substituted for Ro and Na and fourteen notes have to be

inflected as shown above according to the Mode which the Mela represents. A Mela can, thus, be converted to the Mode it represents.

Examples :—

(1) Dhanāshrî :
Mela – Sa *Ro* Ga *Mi* Pa *Do* Na Sa[1]
Mode – Sa *Si* Ga *Mî* Pa *Pi* Na Sa[1]

(2) Darbāri Todî :
Mela – Sa *Ro* Go *Mi* Pa Do *Na* Sa[1]
Mode – Sa *Rŏ* Go *Po* Pa Do *So* Sa[1]

(3) Sohinî :
Mela – Sa *Ro Goo* Ma Pa Do *Noo* Sa[1]
Mode – Sa *Rŏ Rŏ* Ma Pa Do *Da* Sa[1]

(4) Pāschātya Vasanta :
Mela – Sa *Ri* Ga Ma *Pi* Da *No* Sa[1]
Mode – Sa *Go* Ga Ma *Do* Da *Nŏ* Sa[1]

(5) Pāschātya Lalita :
Mela – Sa *Ro Ga* Ma *Po* Do *Na* Sa[1]
Mode – Sa *Rŏ Mo* Ma *Pŏ* Do *So* Sa[1]

The system of notation used in this treatise is a development of that devised by Krishna Dhan Banerji in his 'Gîta Sutra Sāra', on the model of the Tonic Solfa Notation of Europe. The especial feature of this notation is that vowels are used in it as signs for flats and sharps, the originals being expressed by consonants of the alphabet. It is superior to all other current systems of notation, inasmuch as the notes used in it are not only visible, but also pronounceable and audible. The notes of the Staff Notation of Europe are visible but not pronounceable. The original notes of most of the letter-notations of India and Europe are pronounceable, but not their derivatives. The notation used in Gîta Sutra Sāra has been so developed and enlarged in the present treatise as to make it suitable for writing music in just intonation, as explained above.

C. Signs Required for Notation.

The signs used for expressing time-measures and accents in Tonic Solfa Notation, viz., bar, colon, dot and comma, have been utilized for other purposes in this treatise. The signs have been used in that system as marks for dividing time-measures. The bar and the colon have also been used for expressing accents. The space on paper between two bars represents the full time-measure of a particular rhythm. This space is divided equally by colons into two or three parts, each of which represents a single pulse or time-unit.

The space between a bar and a colon or that between two colons is divided equally by a dot into two parts, each part representing half-pluse ; and the space between a colon and a dot is divided equally by a comma into two parts in order have quarter-pulses. This system is very inconvenient for practical purposes. Firstly, because, it is extremely difficult to divide a space equally either in writing or in printing. The notation becomes misleading and useless if the divisions are unequal. Secondly, because, uncommon carefulness is needed in order to read the notation correctly even if the divisions are properly made. We have, therefore, used the bar (danda) only as a dividing line between two consecutive time-measures ; and the colon, the dot and the comma to denote the actual time-values of notes ; the colon (dvi-vindu) indicating unit of time (Mātrā), the dot (vindu) half-unit and the comma (ankusha) quarter-unit. Three-quarter-unit is indicated by a semicolon (ankusha-vindu) which is a combination of a dot and a comma. The time value of a note is known from the sign placed after it and close to it. In order to ensure perspicuity notes of one unit are written separately with a small space between them. Fractional notes making up a full unit are written compactly. Thus :— | S: Rŏ.Go. P;Do, M: |. The vowel-endings of natural notes will be omitted. So a note without any vowel-ending has to be considered as natural. The object of this omission is to bring to prominence the chromatically altered notes.

The bar and the colon have not been used for expressing accents. Three kinds of accents (Praghāta) are used in Indian music, Super-strong (ati-guru), strong (guru) and weak (laghu). The signs. +, /, and o are used for these accents and called Sam, Tāli, and Phānk or Khāli respectively. These are placed over the accented notes. The last Sam on the concluding note of a piece of composition is written as (*). This is called the Nyāsa Sam, which synchronises with the stroke called Dha of the accompanying drum.

(d). **Specimen of Just Notation used in the treatise :**

Rāga : Jaijayantī. Tāla : Tritāla.

Āsthāyī :—

M̊.Pŏ. GŏM. S: Rŏ : | R̊ŏ: Rŏ: Pŏ: M: ||

Dā - - - - - ma - - - - - ni da - - - ma - - - ke

M̊: Pă: Do: Nŏ: | P̊ă: Do: Pŏ: M: |

da - - -ra mo - - -he lā- - - - - - - - - - - ge

M̊: M: S¹: Nŏ: | Ṅŏ: Do: Pă: Do: ||

u - - -ma - -ge- - -da- - - - la bā - - -da - - -la

Ṅŏ: Pă: —: Do: | P̊ŏ: M: —: —: |

shyā - - - - - - - - -ma gha - -tā.....

CHAPTER II.

Theory of Consonance

(Samvāda-Tatwa).

An unlimited number of notes can be conceived within the compass of an octave of a scale. Only a small number of these are, however, considered fit to be used in music. Relationships of some of these musical notes have been mentioned in the preceding chapter for the purpose of ascertaining the positions of the notes in a scale. The distinctive character of all relationships possible amongst musical notes and their significance in the art of music will now be examined from the scientific point of view.

(a). Identity (Samatva): Relationships of musical notes are of three categories, viz., Identity (*Samatva*), Consonance (*Samvāda*) and Dissonance (*Vivāda*). The first kind of relationship is, in popular usage, supposed to exist between one note and another which is eighth in degree above it. This would appear from the long-established custom of calling these two notes by the same name ; though, in point of fact, one is higher in pitch than the other, having double the number of vibrations. Thus, *Sa* and Sa^1 are considered as practically identical notes. On the same analogy, Sa^2 which has double the number of vibrations of Sa^1, is considered identical with the latter note and this relationship of identity is continued *ad infinitum*, as it were. But there is no reason why only those notes should be considered identical. Scientifically speaking, any two notes should be considered identical, if the number of vibrations of one is an exact multiple of that of the other. In other words, if one of them be represented by unit the other may be a note represented by 2 or 3 or 4 or any other whole number. To elucidate this, let us take a series of notes whereof the vibration-numbers are :

10, 20, 30, 40, 50, 60, 70, 80, 90, etc.

If we divide these numbers by 10, we get—

1, 2, 3, 4, 5, 6, 7, 8, 9, etc.

These latter numbers represent the ratios amongst the notes of the above-mentioned series. The second or any one of the other notes of the series may be considered identical with the first note. This sense of identity is accounted for by scientists by the fact that if the first note is sounded it gives rise to all the other notes of the series simultaneously, though much weaker in intensity than the former. The first, *i.e.*, the lowest note, which is in scientific language called the fundamental note, contains as its constituents all the higher notes, which are called its upper partials. So, when a note having the same pitch as that of one of the upper partials is sounded with the fundamental note we do not perceive in the former any element which is not present in the latter and naturally consider them to be identical. It follows from this that every note which has the same pitch as that of any of the upper partials ought to be considered as identical with the fundamental note. This statement, however, must be taken with the following reservations. It has been observed that the higher in pitch is the upper partial the weaker it is in intensity and consequently less perceptible to the ear, until a limit is reached after which it is no longer perceived. Ordinarily, the seventh upper partial or the eighth partial, as it is also called (including the first note as one of the constituents of the whole compound tone), is the last note which comes within the field of human perception[1]. Any note which has the same pitch as that of one of the first seven upper partials of a fundamental note is, therefore, felt to be identical with that note with gradually diminishing

1. According to Prof. Helmholtz we cannot feel identity between the fundamental note and the ninth note, i.e., to say, the note which has the same number of vibrations as its ninth upper partial. But, as the perception of the upper partials depends on a mental faculty which is variously developed by practice, it is, we think, not reasonable to put an arbitrary limit to it, and it is quite possible that the ninth and even the tenth partial may in some individuals come within the field of perception. On such a hypothesis we can explain the recognition of the Major Second (9/8) as an imperfect consonance by theorists of ancient India and medieval Europe.

clearness as the partial is higher and higher in pitch. Let us now see what these notes are according to the system of notation adopted by us. If we call the first or fundamental note *Sa*, the notes in the series will stand thus :—

1	2	3	4	5	6	7	8	9	10	etc.
Sa	Sa^1	Pa^1	Sa^2	Ga^2	Pa^2	×	Sa^3	Ra^3	Ga^3	etc.

The seventh note is omitted, because, having no use in music, it has got no name. It will appear that the second, the fourth and the eighth notes are called by the same name as the first, the numbers indicating that they are in different higher octaves. This usage implies that these notes are considered identical. Such is also the case with the third and the sixth notes, as also with the fifth and the tenth notes. But, from what has been stated above it would follow that all these notes should be called by the same name. The grounds underlying the ancient and universal practice of calling only the octave of a note by the same name to the exclusion of all others will be explained in the beginning of the fourth chapter.

(b). **Consonance (Samvāda)**: The next relationship we have to deal with is that of Consonance (*Samvāda*). Two notes are said to be consonant (Samvādi) to each other if they have a common upper partial perceptible to the ear. The remoter this partial is to these notes the weaker is their consonance, until the limit of perception is crossed, when they are no longer felt to be consonant and are then considered as dissonant. It is mentioned above that, ordinarily speaking, the eighth partial may be considered to lie at the limit of human perception. Therefore, where the common partial is the ninth or any higher partial of one of the two notes, they are to be considered dissonant, inasmuch as this partial cannot be perceived by the ear. The feeling of consonance is produced by the common partial which being in a sense identical with each of the two notes serves as the connecting link between them and produces an æsthetic satisfaction or pleasure by enabling the sub-conscious mind to connect the two notes with a common bond. It is, therefore, evident that the weakness of the percep-

tion of this common bond makes the connection of the two notes difficult for the inner mind to perceive and produces a sort of uneasiness or disquiet. When we are no longer able to connect the two notes by means of a common bond this disquiet becomes complete and we call the notes dissonant (*Vivādi*) to each other. So far as melody is concerned, dissonance (vivāda) is not to be considered as a relationship which produces positive pain (like that produced by beats in harmony), but as one which has the negative attribute of inablity to give satisfaction or pleasure. We shall see below that there are means by which the disquiet produced by dissonances can be removed in some cases. These dissonances then become sources of considerable æsthetic pleasure and thus indispensable materials for melodic composition[2]. There are altogether six relationships of con-

2. It has been stated above that the perception of identity or consonance between notes is due to upper partials. It may, however, be objected that the existence of these upper partials is known to few musicians and yet these relationships have been appreciated all over the world from the most ancient times. Two writers on music of South India named Rāmāmātya and Somanātha speak of what they called 'spontaneously produced' (*Svayambhu*) notes. It is quite probable that they refer to upper partials. But from the description they give of these notes, it does not appear that the writers were able either to hear them clearly or indentify them correctly. There is no doubt that without a properly directed attention and a trained ear these notes cannot be identified, though they may sometimes be faintly heard. There are also the other facts to be taken into consideration that there are Simple Tones which do not give rise to upper partials, that there are certain musical instruments, though of lesser improtance, which produce such notes and that music is also possible on these instruments. The basis of the theory of consonance on the production of upper partial can, therefore, be supported on the assumption only that these partials are produced subjectively within the ear itself, even if they may not exist objectively. Preyer holds that combinational tones, both summational and differential, which are produced by the combination of upper partials have probably no objective existence at all, even when they are heard. He says—

"Therefore, even the comprehensive investigations

sonance. These may be arranged in the following order, according to the degree of their consonance :

Relationship			Ratio
Fifth (*panchama*)	...	...	2
Fourth (*chaturtha*)	...	...	3
Major Sixth (*āyata shastha*)	...	...	3
Major Third (*āyata tritiya*)	...	...	4
Minor Third (*laghu tritiya*)	...	...	5
Minor Sixth (*laghu shastha*)	...	...	5

In the Scale of Origin *Sa* and *Pa* constitute one of the several pairs of notes having the relationship of Fifth to each other. Taking *Sa* to represent a note of 10 vibrations, *Pa* would be a note of 15 vibrations. The least common multiple of 10 and 15 is 30. This is the number of vibrations of the common upper partial of the two notes. This note having twice the number of vibrations of *Pa* is its second partial, which is Pa^1 of the higher octave. It is likewise the third partial of *Sa*, as its vibration number is three times that of the latter note. So, we see where the numbers of

of Koenig do not make the existence of summational tones probable. Hence like the differential tones, they must be generated within the ear".

—Preyer viii, 11 [Quoted in Helmholtz's "Sensations of Tones" (3rd Edition), Appendix XX, Sec. L, Art. 4 (d) p. 532]

As regards Simple Tones Prof Helmholtz admits the subjective existence of their upper partials if these tones are powerful. He says :—

"Since the human ear easily produces combinational tones, for which the principal causes lying in the construction of that organ have just been assigned, it must also form upper partials for powerful Simple Tones, as is the case for tuning-fork, and the masses of air which they excite in the observations described. Hence we cannot easily have the sensation of a powerful Simple Tone without having also the sensation of its harmonic upper partials".

Sensations of Tones, (3rd Edition), Part II, Ch. VII, p. 159.

the ratio of two notes are 2 and 3, those of the common partial in relation to these notes are 3 and 2 respectively, *i.e.*, to say, the same numbers in the reverse order. We can, therefore, say at a glance what the numbers of a common upper partial are with respect to two consonant notes, if we get the numbers of their ratio. Thus, the ratio numbers of the last of the above-mentioned consonances are 5 and 8; the common upper partial in this case is, therefore, the eighth partial of the first and the fifth partial of the second of the two notes having this relationship. The eighth being the last of the partials perceptible to the ear, the Minor Sixth is to be considered the worst of the consonances and is, therefore, placed last. This will explain the order in which the consonances have been arranged in the table given above, a relationship having a ratio represented by numbers whereof the sum is smaller than that of the numbers representing the ratio of another relationship being placed before the latter, as it is to be considered more consonant. The Six consonances may be divided into two groups and designated Perfect and Imperfect Consonances. The first two in the list are included in the first group and the remaining four in the second. There is a marked difference in the degree of consonance of these two groups. It is probably owing to this difference that in ancient India they were given separate names, viz., *Samvādî* and *Anuvādî*. It will, however, be seldom required to observe this distinction in the practical field. We may, therefore, use the word *Samvādî* to include Anuvādî relationships also and use the word *Susamvādî* to signify Perfect Consonance when it will be required to distinguish it from an Imperfect Consonance, which may be called *Anusamvādî* or simply *Anuvādî* according to ancient custom.

(c). **Inversion of Consonance:** Three of the consonant relationships may be obtained from the other three by a process which is called Inversion. Thus, two notes which are related as Fifths may be made Fourths to each other by placing either the lower note an octave higher or

the higher note an octave lower. For example, *Sa* and *Pa* being Fifths to each other have for their ratio 2 : 3. If we place *Sa* an octave higher its ratio-number becomes 4 and *Pa* and Sa^1 become Fourths to each other, the ratio now being 3 : 4. The Fourth is, therefore, called the inversion of the Fifth. For similar reasons, the Minor Sixth is the inversion of the Major Third. For example, if *Sa* of the interval *Sa-Ga*, having the ratio 4 : 5, is placed an octave higher the resulting interval, $Ga\text{-}Sa^1$, having tho ratio 5 : 8, becomes a Minor Sixth. Similarly, also the Major Sixth is the inversion of the Minor Third. For example, the interval *Ga-Pa* a Minor Third with the ratio 5 : 6, by inversion becomes $Pa\text{-}Ga^1$, a Major Sixth having the ratio 6 : 10 = 3 : 5. It follows from the above that the ratios of any two intervals of inverse relationship, if multiplied together, would give the ratio for the whole octave. Thus, the ratios of the Fourth and the Fifth $\frac{4}{3}$ and $\frac{3}{2}$ multiplied together give $\frac{2}{1}$, which is the ratio for the octave. Similarly, $\frac{5}{3} \times \frac{6}{5} = \frac{2}{1}$ and $\frac{8}{5} \times \frac{5}{4} = \frac{2}{1}$. Inverse relationships are, therefore, complementary to each other with regard to the octave.

(d). **Consonant Triads (Samvādī Trayī)** : As one of the two inverse relationships is directly obtainable from the other, they may be considered as two aspects of one and the same relationship ; and one of them may be taken as representative of the other. The Fifth may, therefore, be considered as representative of the Fourth, the Major Third as representative of the Minor Sixth and the Minor Third as that of the Major Sixth. The Six Consonances may, thus, be reduced to three primary consonances, *viz.*, the Fifth, the Major Third, and the Minor Third. These three have a remarkable connection with each other. To explain it, let us take the three notes *Sa*, *Ga* and *Pa*. The ratios of *Ga* and *Pa* to *Sa* are $\frac{5}{4}$ and $\frac{3}{2}$ respectively. So *Ga* is Major Third and *Pa* is Fifth of *Sa*. If we divide the ratio of *Pa* by that of *Ga*, we get the ratio between these two notes. Thus, $\frac{3}{2} \div \frac{5}{4} = \frac{6}{5}$. *Pa* is, therefore, Minor Third of *Ga*. It follows from this that a Major Third and a Minor Third together make up a Fifth ($\frac{5}{4} \times \frac{6}{5} = \frac{3}{2}$). Major and Minor Thirds

are, accordingly, complementary to each other with regard to Fifth. Three notes which, like the notes in the example given above, are consonant to each other, constitute what is called a Constant Triad (*Samvādî Trayî*). Now, as $\frac{6}{5} \times \frac{5}{4}$ gives $\frac{3}{2}$ just as $\frac{5}{4} \times \frac{6}{5}$, we may reverse the order of the Thirds and place the Minor Third below the Major Third in order to make up the *Fifth. In the above example, the second note Ga will have to* be placed a small semitone lower in order to make it a Minor Third to *Sa*. That is to say, it has to be made flatter by the interval $\frac{25}{24}$. According to the notation formulated above this note will be called *Go*. Thus, we get another consonant triad *Sa-Go-Pa*, in which the relationships of the middle note to the lowest and the highest notes are reversed. In order to distinguish between these two traids the first is called a Major Triad inasmuch as a Major Third is placed above the lowest note which is taken as the starting note, and for a similar reason the other is called a Minor Triad.

(e). **Inversions of Triads**: Each of these two triads may have two other forms which may be arrived at by placing the lowest note an octave higher and the highest note an octave lower. The former is called the first inversion and the latter the second inversion of the triad. In the above example of the Major Triad *Ga-Pa-Sa*^{1} would be the first inversion and *Pa*$_1$*-Sa-Ga* the second. The first inversion of the Minor Traid would be *Go-Pa-Sa*^{1} and the second *Pa*$_1$*-Sa-Go*. We have thus altogether six triads, three Major and three Minor.

(f). **Perfect and Imperfect Triads**: The Major and Minor Triads, though they have the common feature that their notes are consonant to each other, have this marked difference that the notes of the former are upper partials of a common fundamental note, but those of the latter are not so; while, on the other hand, the notes of the latter have a common upper partial, which those of the former have not. To show this, let us rewrite the first eight notes

of the harmonic series given above, omitting the second note :

$$\begin{array}{cccccc} & & (2) & & & \\ Sa & Pa^1 & Sa^2 & Ga^2 & Pa^2 & Sa^3 \\ 1 & 3 & 4 & 5 & 6 & 8 \\ & (1) & & & (3) & \end{array} \qquad \text{(I)}$$

In this series the three notes connected by a brace and marked (2) constitute a Major Triad in its original form, those marked (3) constitute its first inversion and those marked (1) its second inversion. It will be observed that the notes marked (1) are nearer to the fundamental tone than those marked (2) and the latter nearer than those marked (3). It, therefore, follows that the second inversion is more pleasant than the original triad and the latter more than the first inversion. It will be further observed that the note *Go* has no place in the above series. Therefore, notes of the Minor Triad and its inversions cannot be connected to the fundamental tone of the above series. They can be connected to another fundamental tone, whereof they are upper partials which being higher than the eighth are not perceptible to the ear.

Let us next take a series of notes having 15, 20, 24, 30 and 40 vibrations. The least common multiple of these numbers is 120. If we call the note of 15 vibrations *Pa*, the other notes will be Sa^1, Go^1, Pa^1, Sa^2 and the note having 120 vibrations will be Pa^3. By dividing all the above numbers by 120 we get $\frac{1}{8}$, $\frac{1}{6}$, $\frac{1}{5}$, $\frac{1}{4}$, $\frac{1}{3}$, and 1. These would be the vibration-numbers of the notes given above, if we take unit to be the vibration-number for the highest note Pa^3. The series will then stand thus :

$$\begin{array}{cccccc} & (2) & & & & \\ Pa & Sa^1 & Go^1 & Pa^1 & Sa^2 — Pa^3 & \cdots \quad \cdots \\ \frac{1}{8} & \frac{1}{6} & \frac{1}{5} & \frac{1}{4} & \frac{1}{3} \quad — 1 & \\ & (3) & & (1) & & \end{array} \qquad \text{(II)}$$

It will be seen that the notes marked (2) in the above

series constitute a Minor Triad in its original form, those marked (1) are its first inversion and those marked (3) the second inversion. The last note *Pa*[3] in this series is an upper partial of all the other notes, as the number of its vibrations is a multiple of that of everyone of them. The notes of each of the Minor Triads are, therefore, related to a common upper partial. Their mutual consonance is thus directly perceptible. This cannot be said with regard to the Major Triads, as the series No. II does not include the note *Ga* of the Major Triad. The notes of the Major Triads can be connected through a common upper partial which is higher than the eighth partial of the nearest note and consequently not perceptible to the ear. The Major Triads must, therefore, be considered to be inferior to the Minor Triads as regards agreeableness. They are, however, good enough for melody, inasmuch as the notes. being sounded one after another and not simultaneously as in harmony, may be considered as consisting of three different pairs of consonant notes. They can, indeed, be improved upon by sounding the prime tone called the Fundrmental Bass either just before or after them in a melodic progression or together with them as is almost invariably done in harmonic music. The Minor Triads do not require such support in order that their consonant character may be perceived, as the common partial, which is subjectively produced need not be actually sounded. We may, therefore, designate the Minor Triads as Perfect Triads and the Major Triads are Imperfect Triads[3].

3. It should be pointed out here that the words 'Major' and 'Minor', as they are used with regard to triads, are rather misleading, as they imply that the lowest note of the original triad, which is called its 'root', is the most important note, the triad being named according to the character of the Third above it. Though the lowest note of the original Major Triad may, with some justification, be called its root, as it is nearest to the Fundamental Bass and so has the greatest identity with the latter ; it becomes remoter from that tone than one of the other two notes in the inversions which in its turn comes nearest to it, and thus, acquiring greatest identity with it, should be called the root of the triad for the time being. The notes of a Minor Triad can not be identified with a Fundamental

The triads of each of the groups also vary in the degree of their consonance in accordance with their proximity to the fundamental tone or the common partial as the case may be.

It will be further observed that the fifth, the fourth, the third, the second and the first notes of Series No. II have the same relationships with its sixth note that the second, the third, the fourth, the fifth and the sixth notes respectively of Series No. I have with its first note. The two series are, therefore, exactly converse to each other. The three triads of one of the series will also be found to be converse to those of the other in the reverse order. Thus, triads Nos. 1, 2, and 3 of Series No. I are converse to triads Nos. 1, 2 and 3 respectively of Series No. II.

An analysis of the characters of the several triads will show that the original triads contain Thirds and Fifths above their lowest notes, the first inversions contain Thirds and Sixths and the second inversions Fourths and Sixths. They are, therefore, sometimes called 3-5, 3-6 and 4 6 triads respectively.

(g). **Triads of Sa:** In order that it may be convenient to compare the triads with each other and realize the difference in position of their notes, it is required that all the triads should start from the same note. With that end in view we shall take the lowest note of a triad as its starting note. Let us call it *Sa*. The second note of the triad *Ga-Pa-Sa*[1] is a Minor Third and the third note a Minor Sixth above *Ga*. If we bring *Ga* to the pitch of *Sa*, the triad will take the form *Sa-Go-Do*, the last note being a small semitone ($\frac{25}{24}$) lower than *Da*. The triad Pa_1-*Sa-Ga*, which has a Fourth and a Major Sixth above its lowest note, will appear as *Sa-Ma-Da*. The triad *Go-Pa-Sa*[1], having a Major Third and a Major Sixth above its lowest note, will appear as *Sa-Ga-Da*; and the triad Pa_1-*Sa-Go*, with a Fourth and a Minor Sixth above the lowest note, will take the form *Sa-Ma-Do*.

Bass. The word 'root' applied to its lowest note is, therefore, irrelevant. The highest note which is nearest to the common upper partial may, however, be considered to be the most prominent note or 'root' of the Minor Triad.

The triads may now be arranged in two columns in which converse triads may be placed opposite to each other and more consonant triads above the less consonant ones. Thus :

Converse Consonant Triads

	Perfect (Minor)	Imperfect (Major)	
First	*Sa-Ga-Da*	*Sa-Ma-Da* ...	First
Seeond	*Sa-Go-Pa*	*Sa-Ga-Pa* ...	Second
Third	*Sa-Ma-Do*	*Sa-Go-Do* ...	Third

The Perfect Triads may, in melodic progression, be considered as descending triads primarily, inasmuch as the highest note of each of these triads, being nearest to the Common Partial, gives rise to it most strongly and so, being most prominent, is sounded more spontaneously than the other notes and comes naturally first in the progression. Similarly, the Imperfect Triads may be considered as ascending triads primarily, owing to the proximity of the lowest note of each of these triads to the Fundamental Tone. We have used the word 'primarily' on purpose, as it would be wrong to infer from the above statement that the triads cannot be used both in ascent and in descent[4].

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4. In fact both the triads are found to be used both ways in melodic compositions. From the melodic and practical point of view, therefore, the so-called Major Triad should be regarded primarily as an Ascending Major Triad and secondarily also as a Descending Minor Triad, taking the highest note of the triad to be the starting note at the time of descent. For a similar reason, the so-called Minor Triad is primarily a Descending Major Triad and secondarily an Ascending Minor Triad. The following remarks of Helmholtz seem to have been made from a similar conception of triads :

> "The two first of these triads are considerd in musical theory as the fundamental triads from which all others are deduced. They may each be regarded as composed of two Triads, one major and the other minor, superimposed in different orders"—Sensation of Tones-Pt. III, Ch. XII, p. 212.

(h). **Dissonance (Vivāda):** The third kind of relationship, called Dissonance needs no definition, as all relationships, which are neither those of Identity nor those of consonance belong to this category. It is, therefore, evident that this class includes an unlimited number of relationships. Any relationship between two notes, which the human ear cannot connect with each other, may be considered dissonance. The human voice cannot sing these intervals spontaneously, as the notes have no perceptible connection with each other. It would be natural to conclude from this that dissonances have no place in music. It is, however, a well known fact that the number of dissonant intervals in a scale is almost equal to that of the consonant ones. A note-worthy feature of every scale is that the two notes, which are nearest to a particular note in it, are both dissonant to it. For example, *Sa* and *Ga* are both dissonant to *Ra*. It follows from this that all consecutive notes in a scale are dissonant (vivādî) to each other. For smooth melodic progression constant use of consecutive notes is unavoidable. For this reason dissonant intervals are found to be as frequent as consonant ones in melodic compositions. Such compositions are, however, not considered bad on account of the presence of these dissonant intervals. The explanation for this apparently paradoxical phenomenon is that the notes of most of these intervals are related to each other indirectly through a common consonant note. Dissonant intervals so related have a special æsthetic value in music and will be termed Related Dissonances in order to distinguish them from the remaining mass of dissonant intervals, which are useless for musical purposes. These have now to be dealt with.

It should, however, be pointed out that the words 'major' and 'minor' lose all significance, where in an inversion the lowest or the highest note, as the case may be, which is to be considered as the root of the triad for the time being, as suggested in the preceding foot-note (no. 3), has no Third above or below it, but a Fourth.

(*i*). **Related Dissonance (Sambaddha Vivāda)**: We have referred above to four kinds of intervals between consecutive notes, namely, *Major Tone, Minor Tone, Major Semitone and* Minor Semitone. The interval having the ratio $\frac{25}{24}$, which is the difference between Major and Minor Thirds or Sixths, is used in some very popular scales found only in India. This interval will be called a Small Semitone (Kshudra Ardha -svana). Another interval between consecutive notes which may be expressed by the ratio $\frac{75}{64}$ is also to be found in a few scales. This interval stands between Minor Third and Major Tone in size and will, therefore, be called Large Tone (Vrihat Svana). There are, thus, altogether six kinds of intervals between consecutive notes of a scale. The ratios of these intervals are shown below in the order of their size, the largest one being placed first:

1.	Large Tone	··· $\frac{75}{64}$	4.	Major Semitone	··· $\frac{27}{25}$
2.	Major Tone	··· $\frac{9}{8}$	5.	Minor Semitone	··· $\frac{16}{15}$
3.	Minor Tone	··· $\frac{10}{9}$	6.	Small Semitone	··· $\frac{25}{24}$

Of these six intervals the second, the third, the fifth and the sixth are Related Dissonances. Large Tone and Major Semitone are unrelated. Notes separated by a Major Tone are indirectly related to each other through the note which is Fourth below the lower note and Fifth below the upper. In terms of ratios their relationships may be expressed thus: $\frac{3}{2} \div \frac{4}{3} = \frac{9}{8}$. Example:

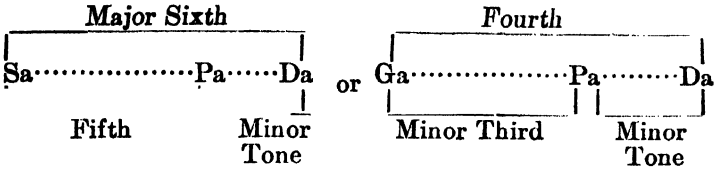
Fifth

Sa·····Ma·····Pa

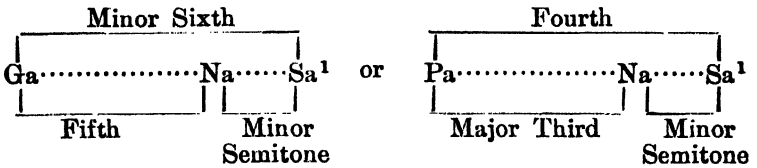
Fourth Major Tone

Notes having a Minor Tone between them may be related either through the note which is Fifth below the lower and Major Sixth below the upper note, or through the note which is

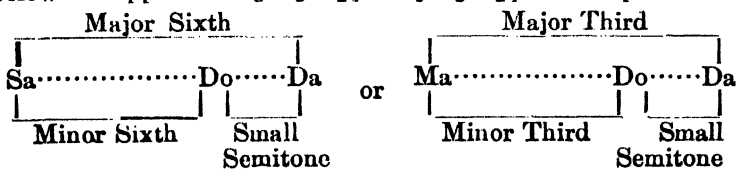
Minor Third below the lower and Fourth below the upper note $\frac{5}{3} \div \frac{3}{2} = \frac{10}{9}$ or $\frac{4}{3} \div \frac{6}{5} = \frac{10}{9}$. Examples :



Notes separated by a Minor Semitone may be related either through the note which is Fifth below the lower and Minor Sixth below the upper note or through the note which is Major Third below the lower and Fourth below the upper note $\frac{8}{5} \div \frac{3}{2} = \frac{16}{15}$ or $\frac{4}{3} \div \frac{5}{4} = \frac{16}{15}$. Examples :



Notes having a Small Semitone between them may be related either through the note which is Minor Sixth below the lower and Major Sixth below the upper note or through the note which is Minor Third below the lower and Major Third below the upper note $\frac{5}{3} \div \frac{8}{5} = \frac{25}{24}$ or $\frac{5}{4} \div \frac{6}{5} = \frac{25}{24}$. Examples :



(j). Dissonant Triad (Vivāditrayî) : If we take Sa as the common consonant note for all the above-mentioned dissonant intervals and arrange them according to their distances from Sa, we get the following triads :

1. Sa-Go-Ga	4. Sa-Ma-Pa
2. Sa-Go-Ma	5. Sa-Pa-Do
3. Sa-Ga-Ma	6. Sa-Pa-Da

7. Sa-Do-Da

The Common consonant note has been placed below the dissonant notes in these triads. It may be placed above them by raising it an octave higher. The resulting triads should be arranged in the reverse order. With Sa^1 as the starting note these would stand thus :

1. Sa^1-Da-Do	4. Sa^1-Pa-Ma
2. Sa^1-Da-Pa	5. Sa^1-Ma-Ga
3. Sa^1-Do-Pa	6. Sa^1-Ma-Go

7. Sa^1-Ga-Go

All perfect melodic phrases are based on these fourteen triads in different forms according to their positions in the scale. They are, therefore, to be called "Melodic or Dissonant Triads", as distinguished from "Harmonic or Consonant Triads" explained above. As the first seven are used in the ascending order and the other seven in the descending order, they are to be called "Ascending Melodic Triads" and "Descending Melodic Triads" respectively.

CHAPTER III.

Cycles of Twenty-two and Fifty-three (Shruti and Anushruti).

(a). Cyclic Division ; its necessity—Shrutis of ancient India: Hitherto we have expressed all musical relationships and intervals by means of ratios. Though this is the only scientifically correct method, it has certain drawbacks from the practical point of view. In the first place, the comparative magnitudes of musical intervals cannot be ascertained unless the fractions representing their ratios are reduced to a common denominator. Secondly, the sum of two intervals cannot be found out by addition or their difference by subtraction, even if the fractions are reduced to a common denominator. These have to be worked out by multiplication or division, which are by no means easy operations to perform orally. For example, we cannot say at a glance which of the two fractions $\frac{5}{3}$ and $\frac{8}{5}$ is greater and which less and by how much. We can compare the magniudes of these fractions only after we reduce them to the common denominator 15, thus expressing them as $\frac{25}{15}$ and $\frac{24}{15}$. Again the sum of of the intervals represented by these fractions is not $\frac{25}{15}+\frac{24}{15}$ or $\frac{49}{15}$ but $\frac{25}{15}\times\frac{24}{15}$ or $\frac{8}{3}$; and their difference is not $\frac{25}{15}-\frac{24}{15}$ or $\frac{1}{15}$ but $\frac{25}{15}\div\frac{24}{15}$ or $\frac{25}{24}$. Such calculations, though indispensable for scientific purposes, are not possible in the practical field, where we have to ascertain magnitudes, sums and differences of musical intervals frequently and at a glance. The only device which can be adopted for these purposes is to divide the octave into so many equal parts that a required musical interval can be represented by a definite number of these parts. The extent of accuracy of an interval represented by a certain number would depend on the total number of parts into which the octave is divided, the greater this number the greater the accuracy. Even Scientists have found it convenient to resort to the aforesaid device for the purpose of comparing the magnitudes of musical intervals. They have divided the

octave into twelve hundred equal parts, sub-dividing each semitone of equal temperament into one hundred parts. Each of these parts has been called a 'cent'. But, such a large number of degrees within the compass of a single octave is anything but convenient for ordinary practical purposes. The earliest and perhaps the only instance of cycle of a small number of degrees adopted by practical musicians for dividing the octave is to be found in the Shruti scheme of ancient India, in which the octave was divided into twenty-two equal parts[1]. We shall, therefore, examine the properties of the cycle of twenty-two and also those of some other small cycles in order to find out which one is best suited for our purpose.

(b). Purposes served by cyclic division : Cyclic division of an octave may have either a theoretical or a practical purpose. Theoretically it may be used with two objects in view. First, it may be used for the simple purpose of knowing the approximate magnitudes of different musical intervals in order to understand the relative positions of notes in the scale. Secondly, its adoption may have in view the higher purpose of finding out the distinction between different scales or modes—a distinction which is not apparent to a casual observer—by a scrutinising study of the intervals used in them. For the first of these theoretical purposes it is sufficient that the cycle is capable of expressing by means of integral numbers the eleven musical intervals known to musicians almost all over the world including the six consonant intervals, viz., the Fourth, the Fifth, and the Major and Minor Thirds and Sixths, and the five dissonant intervals, viz, the Semitone, the tone, the Tritone, the Minor Seventh and the Major Seventh.

(c). Cycle of Twelve ; its defects : If the octave be divided into twelve equal parts and a note be placed at the

1. The Arabic division of an octave into twenty-four equal parts may not be considered as an instance of cyclic division contemplated here, unless it is shown that the Arabs made a distinction between Major and Minor Tones. Apparently it is indistinguishable from the semitonic division, inasmuch as each division in it is half of a semitone.

end of each division, we would get eleven notes separated from the initial note of the scale by the eleven intervals mentioned above. These eleven notes together with the initial note make the twelve notes of popular music comprising the seven natural (*Shuddha*) and the five chromatic (*Vikrita*) notes. In this method of dividing the octave the several intervals would be represented by the following numbers of degrees :—

Interval	*Degrees*	*Interval*	*Degrees*
Semitone	1	Fifth	7
Tone	2	Minor Sixth	8
Minor Third···	··· 3	Major Sixth	9
Major Third···	··· 4	Minor Seventh···	10
Fourth ···	··· 5	Major Seventh···	11
Tritone ···	··· 6	Octave ···	12

If this be treated as a cyclic division, each of its degrees would represent a semitone wherever it is placed within the octave or above it or below it. We would get any one of the aforesaid intervals from any note in any octave by counting from that note the number of degrees representing that interval, as given above. Some of these intervals would be almost accurate in intonation, while others only approximately so. Nevertheless, they would give us a fair idea about the relative positions of the notes, which is of utmost importance in the practical field of music. For this reason and also on account of the remarkable fact that the number of degrees corresponds with the number of notes ordinarily used in music, this method of division, which is known as the semitonic equal division, has been most widely accepted all over the world. The great defect of this method from the theoretical point of view is that the small but very important interval called by scientists "comma", which distinguishes Major Tones and Semitones from Minor ones, has no place in it. Consesquently, the higher theoretical purpose of distinguishing the different scales or modes from each other cannot be served by this method. For that purpose the cycle of a small number of degrees must satisfy certain conditions.

(d). Conditions of theoretical fitness of Cycle :

(1) It must be capable of expressing by means of integral numbers the four primary intervals, viz., Major Tone, Minor Tone, Major Semitone and Minor Semitone.

(2) The comma interval must be represented by the unit degree.

(3) The two bigger primary intervals the Major Tone and the Minor Tone must be differentiated from each other by a single degree ; and the two smaller primary intervals the Major Semitone and the Minor Semitone must also be similarly differentiated.

(e). Cycle of Twenty-two ; its inadequancy : The cycle of twenty-two does not fully satisfy all these conditions. It is capable of expressing only the three primary intervals Major Tone, Minor Tone and Minor Semitone, by the integers 4, 3 and 2 respectively. The Major Semitone cannot be expressed by this cycle. Ancient Indian theorists used to express by varying juxta-positions of the aforesaid three intervals four different tonalities of their musical scale, corresponding to the first four Primary Scales of the present treatise[2]. Two of these four scales, which have no Major Semitone in them, were correctly expressed by means of these Shruti-intervals. Some ambiguity is to be found in the structure of the other two scales, which have a Major Semitone. In spite of this defect, the ancient Shruti system played a most important part in the musical theory of India for several centuries. It was only when the distinction between the four ancient tonalities was forgotten that the Shruti system lost its true significance. The Shrutis, however, continued to be used by Indian theorists even after all music came to be based on a single scale, the ancient Shadja Grāma, about fifteenth century A.D. At this period when it was found convenient to start all modes from a common initial, a system of twelve notes to the octave, unknown to ancient India, came to be introduced for the first time.

2. Vide Chapter VIII for an explanation of these ancient scales.

The Shrutis now became meaningless, as the new system practically amounted to a division of the octave into twelve equal semitones. Nevertheless, the Shruti system, howsoever defective, has got a permanent value, inasmuch as the four ancient and other tonalities, which they are capable of expressing, can serve as basis for considerable development of music if properly utilised. In order to make the system more useful for theoretical purposes we have only to increase the number of Shrutis, as we shall see presently.

(f). Cycle of twenty-seven ; Its theoretical fitness : In order that all the conditions laid down above for a good cycle of a small number of degrees may be satisfied the four primary intervals should be represented by the integers 5, 4, 3 and 2. So, in a scale consisting of three Major Tones, two Minor Tones and two Minor Semitones the total number of degrees would be twenty-seven. The cycle of twenty-seven is, therefore, the smallest cycle good for theoretical purposes. The Shruti system has five degrees less than this cycle. This deficiency explains its inability to express the distinction between a Major Semitone and a Minor Semitone.

(g). Practical use of Shrutis : So long as a cyclic division is intended for theoretical purposes only, approximation to scientific accuracy of the intervals need not be insisted on. But, if the cycle is to be used practically either for tempering or for tuning musical instruments the intervals expressed by it must be of such close approximation to scientific accuracy that they may not hurt the musical sensibility of a well-trained ear. There has been a good deal of controversy as to whether the *Veena*, the standard musical instrument of India, was ever actually tempered equally according to the *Shruti* system of twenty-two degrees. Apart from the practical difficulty of tempering an instrument in exactly equal degrees in the absence of knowledge of scientific methods, there is scarcely any evidence of practical use of *Shrutis* in ancient treatises. Moreover, if the *Veena* is to be tempered according to that system, it has to be provided with twenty-two frets within the

compass of a single octave. This will be found to be almost impossible physically, if the usual size of these intruments be taken into consideration. Modern *Veenas* are provided with only twelve fixed frets within an octave. This is what is known as the *Achala Thāt.* Such arrangement of frets could not possibly have been made in ancient *Veenas* as the earlier theorists practically admitted only one chromatic note—the *Antara*[3]. The frets in these instruments were movable and positions of notes were determined by shifting them according to the numbers of Shrutis contained in the notes. Most modern stringed instruments of India except the *Veena*[4] are provided with movable frets, which are usually eight or nine in an octave ; and chromatic notes are obtained by shifting these frets. *Veenas* came to be provided with fixed frets (Achala Thāt) only after the five chromatic notes were introduced about the fifteenth century A.D. The frets are not fixed in a scientific method. Musicians are not bound to use them as a rule, but, depending on their musical ear, often produce a required note by swinging the speaking wire sideways while it is pressed on a fret (*Ghaseet*). There is, therefore, scarcely any ground for supposing that the *Achala Thāt* was meant for semitonic equal temperament. However that may be, modern musicians of India did not find anything quite new when keyed instruments of Europe were introduced into India about the middle of the nineteenth century. These instruments, being tempered accurately in a scientific method according to the semitonic equal division explained above, were found to be quite handy and useful and soon became popular. But orthodox devotees of the higher types of classical music consider these imported instruments unsuitable either for ear-training or for accompaniment. The fact that some of the consonant intervals

3. The *Kākali* cannot be considered a chromatic note as it was never used separately, but always along with the *Antara* for making a *grāma sādhārana.*

4. The main reason for providing *Veenas* with fixed frets seems to be the difficulty of providing them with movable ones.

of these keyed instruments are intolerably bad seems to account for this attitude of orthodox Indian musicians towards these instruments. They always use the traditional *Tānpurā*, an instrument with four strings, which produce only the two key-notes with some distinctly audible upper partials[5]. This instrument is of great help to a musician in singing in correct intonation. He has, however, to depend a good deal on his innate musical faculty which, unfortunately, may not be highly developed in him. An instrument, which can produce all the notes of a scale or a mode almost accurately, must be of immense value not only to a student of music, who wants to train his ears properly, but also to a trained muscian who wants to be sure about the correctness of his notes or to convince others of it. We shall, therefore, now compare a few cycles in order to find out one which gives intervals in nearly just intonation, and shall then see whether and how far this cycle can be used in either tempering or tuning a musical instrument.

A comparison of the magnitudes of the Fifth, the Major Third and the Minor Third of the cycles will serve our purpose, as the other three consonant intervals, viz., the Fourth, the Minor Sixth and the Major Sixth are respectively complementary to the aforesaid three intervals in an octave. The intervals will be expressed in terms of cents. The correct magnitudes of the Fifth, the Major Third and the Minor Third are 702,·386 and 316 cents respectively. These intervals are 700,400 and 300 cents in the semitonic equal temperament and 708·5, 381·5 and 327 cents respectively in the equal division of the Shruti system. It will, thus, appear that the Fifth of the Semitonic division is nearly correct, while that of the Shruti division is slightly worse, being $6\frac{1}{2}$ cents *i.e.* about $\frac{1}{3}$ of a comma too large (a comma=22 cents).

5. The strings of this instrument are placed ingeniously on a small plate in such a way that, when plucked, the vibrating string touches the plate repeatedly, so that the vibrations are richly amplified and give out distinct upper partials.

The Major and the Minor Thirds of the former are, however, much worse than those of the latter. The Major Third of the former is 14 cents or about $\frac{2}{3}$ of a comma too large and the Minor Third 16 cents too small; while the Major Third of the latter is only $4\frac{1}{2}$ cents or about $\frac{1}{5}$ of a comma too small and the Minor Third is 11 cents or $\frac{1}{2}$ a comma too large. So, on the whole the Shruti division cannot be considered worse than the Semitonic division. The cycle of twenty-seven, as we shall see presently, stands in this respect almost on an equal footing with that of twenty-two.

(h). Comparative merits of some cycles: There are some cycles of larger numbers of degrees which are better than the aforesaid cycles in almost every respect. These are the cycles of thirty-four, forty-one, forty-six and fifty-three, the last one being the best of all. The numbers of degrees in the primary intervals and those in the Fifth, the Major Third and the Minor Third of all the aforesaid cycles except that of twelve are given below:

Cycle	*Primary Intervals*	*Fifth*	*Major Third*	*Minor Third*
22	4, 3, 2, 2	13	7	6
27	5, 4, 3, 2	16	9	7
34	6, 5, 4, 3	20	11	9
41	7, 6, 5, 4	24	13	11
46	8, 7, 5, 4	27	15	12
53	9, 8, 6, 5	31	17	14

The common features of all these cycles are: (1) the integers for the Major and the Minor Thirds added together give the integer for the Fifth; (2) the integers for the Major and the Minor Tones give that for the Major Third; and (3) the integers for the Major Tone and the Minor Semitone give that for the Minor Third. But the cycle of twenty-two, which cannot distinguish the Major Semitone from the Minor, does not possess the fourth feature common to the rest that the integers for the Minor Tone and the Major Semitone added together give the integer for the

Minor Third. This defect of the cycle of twenty-two accounts for the ambiguity of two of the ancient Indian scales referred to above, as will be explained in a subsequent chapter. The other five cycles are equally capable of expressing correctly the distinction between different scales or modes.

The following table shows in terms of cents the magnitudes of the Comma, the Fifth, the Major Third and the Minor Third of the aforesaid cycles. The extent of their proximity to the correct magnitudes of those intervals will be seen from a comparison with the latter :

Cycle	*Comma*	*Fifth*	*Major Third*	*Minor Third*
22	54.5	708.5	381.5	327
27	44	711	400	311
34	35	706	388	318
41	29	701	380	321
46	26	702	390	312
53	22.6	702	385	317

It will be observed that the Fifth is quite correct in the last two cycles and it is almost so in the cycle of forty-one. In the other cycles it is more or less defective being worst in that of twenty-seven. The Major and the Minor Thirds are almost accurate in the cycle of fifty-three being defective by only one cent in each case. Those in the cycle of thirty-four are also nearly accurate, being each defective by only two cents. Those in the other cycles are appreciably bad. The magnitude of the unit degree, which represents a comma, is almost exactly accurate in the cycle of fifty-three. In all the others it is appreciably too large, being double its actual size in the cycle of twenty-seven and two and half times in that of twenty-two. Appreciation of the comma is essential for singing in just intonation as this interval distinguishes not only a major primary interval from a minor one, but also a true consonance from a false one, and it is the position of the false Minor Third in a Primary Scale that, as we shall see, determines the character of that scale. Although the cycle of forty-six is also fairly acceptable, that

of fifty-three is almost perfect in every respect[6]. With regard to this cycle Prof. Helmholtz remarks that it gives a 'scale in almost precisely just intonation'.

(i). Cycle of Fifty-three, the best; Anushruti (Non-atone) : It will thus be seen that the cycle of fifty-three is the best of all small cycles both for theoretical and practical use. We have, therefore, adopted it in the present treatise. In doing so we have but followed the ancient Indian tradition, having used

6. The author is indebted to Rao Sahib Prabhakar R. Bhandarkar, B.A, L.M. and S., Indore, for his valuable article "Contribution to the study of ancient Hindu Music", published in the Indian Antiquary, Vol. XLI-1912. In Table C of that article he has given the values in terms of cents of Major and Minor thirds and Fifths of the cycles of 22, 29, 32, 34, 41, 46 and 53. The cycles of 29 and 32 have been omitted from and that of 27 has been added to the tables of cycles given in this chapter. Inclusion of 22 in Bhandarkar's table of cycles shows that he considered the shrutis to be of equal dimension, which is essential for the degrees of a cycle. The controversy as to whether the shrutis were of equal or unequal dimension was set at rest at the first All India Music Conference, held in Baroda in 1916, by the view expressed by V. V. Phadke, retired first class Subordinate Judge of the province of Bombay and Pandit Abraham of Tanjore. This view, which was accepted by V. N. Bhatkhande, B.A., LL.B., was aptly expressed by him in the following words :—

"There being twenty-two equal intervals between the higher and the lower "ni" each interval would be equal to the twenty-second root of 2". (Sangeeta, December, 1930, p. 16). Bhandarkar took no account of the Major Semitone, which was an unnoticed primary interval. It has been shown above that a cycle which makes no provision for this interval cannot give distinctive expression to all scales. Cycles of 22, 29 and 32 are of this description. That is the reason why the cycles of 29 and 32 have been omitted in the tables given above. The cycle of 27 has been added, because it stands on the same footing with the other four cycles in this respect. It should be pointed out that the shruti scheme does not appear to have any scientific basis. The cycle of 22 cannot be used for the higher practical purpose of tuning instruments in just intonation. Its use for certain theoretical purposes is limited. That limited utility too would be lost if the shruits are considered to be of unequal dimensions.

it for the same theoretical purposes and in the same manner as the Shrutis were used in ancient India, only much more efficiently. A degree of this cycle being much smaller in magnitude than a *Shruti*, we have called it an Anu-shruti (*small shruti*). For its English equivalent we have coined the word 'nonatone' as it is one-ninth of a Major Tone.

(j). Practical use of Anushrutis : Finally, we have got to see how far the said cycle can be used either for tempering or for tuning musical instruments. It is almost impossible to place in a single row fifty-three keys within an octave of a keyed instrument like the piano or the organ. Even if it were possible, such an instrument would be quite unwieldy, for a musician would have at the time of playing a piece of composition to pick out only seven or eight keys out of fifty-three, which is a quite formidable number for such instruments. As all the keys would be equally prominent before his eyes, it would be next to impossible for the musician to confine his attention to the required few keys only. Mr. Bosanquet devised a harmonium, in which he ingeniously placed the fifty-three keys in several rows. But it was so complicated and difficult to manipulate that it became useless for a practical man of music. No other scheme for temperament, which may be practically helpful, has yet been suggested. It is, however, possible to tune according to the said cycle certain Indian stringed instruments of the *Veena* type, which are provided with movable frets. A plate graduated with fifty-three equal divisions in an octave can be placed on the side of an instrument of this kind and the frets can be provided with pointers and so adjusted that any one of them can be moved to and fixed by means of a screw at the particular degree of the graduated plate indicating a required note. Frets have to be moved by the musician according to the mode of the piece of composition to be played only once just before the performance and their positions need not be disturbed until a piece in a different mode is to be played. Such movement of frets is quite familiar to an Indian musician playing one of these instruments. In instruments constructed as they are

at present the movements have to be made by the player with the help of his musical ear, which is, if he is a beginner, unreliable, and which is in no case quite reliable always. But, with the help of an instrument properly constructed on the aforesaid plan anybody may have music in just intonation by a simple mechanical adjustment of a few frets[7].

The positions of notes in the Nonatonic Scale and the names of those which have been used in this treatise have been given in the table at the end of this chapter. Distinction should be made between nonatones and nonatonic notes as shown in the table. A nonatone is an interval and the corresponding nonatonic note is the note placed next above in the scale. For example, the nonatonic note no. 5 in the annexed table is the note situated immediately after the fifth nonatone above the starting note, the notes being indicated by lines and the nonatones by spaces between them. The starting and the finishing notes in the table are, therefore, both numbered 53.

In the succeeding chapters we shall use Anushrutis just as ancient Indians used Shrutis. All kinds of musical intervals can be expressed by them with the utmost possible scientific accuracy. The errors involved are so insignificant that the most sensitive musical ear cannot detect them in notes produced by instruments tuned according to these Anushrutis. The cumbersome ratios will hereafter be avoided as much as possible and sums and differences of musical intervals will be ascertained by simple processes of addition and subtraction of intregal numbers instead of the difficult processes of multiplication and division of fractions expressing ratios.

(k). Musical invervals in terms of Anushrutis : The numbers of Anushrutis representing the six consonant intervals,

7. How a stringed instrument of the above description can be constructed on scientific lines has been fully explained in a dissertation by the author entitled "Scheme for a Model Stringed Instrument of the Veena type" to be found in the Appendix B of this treatise. An instrument constructed according to the scheme laid down in it has been found to be satisfactory.

together with those of the six dissonant intervals mentioned in the last preceding chapter are given below in the order of their magnitudes :—

	Consonant Intervals	Anushrutis		Dissonant Intervals	Anushruits
1.	Major sixth	... 39	1.	Large Tone	... 12
2.	Minor sixth	... 36	2.	Major Tone	... 9
3.	Fifth	... 31	3.	Minor Tone	... 8
4.	Fourth	... 22	4.	Major Semitone	... 6
5.	Major Third	... 17	5.	Minor Semitone	5
6.	Minor Third	14	6.	Small Semitone	3

(*Table overleaf.*)

(I). TABLE.

Notes in the Notatonic Scale.

Note No.	Scale	Note Name	Note No.	Scale	Note Name	Note No.	Scale	Note Name
53	.....	Sa, सा	18	.....		36	.....	Do, धो
1	.....		19	.....	Mo, मो	37	.....	Dăo, ध्यो
2	.....		20	.....		38	.....	
3	.....	Si, सि	21	.....		39	.....	Da, धा
4	.....		22	.....	Ma, मा	40	.....	Dâ, धे
5	.....	Rŏ, रौ	23	.....	Mâ, मे	41	.....	Noo, नु
6	.....	Ro, रो	24	.....		42	.....	
7	.....		25	.....	Mi, मि	43	.....	Dî, धी
8	.....	Ră, र	26	.....	Mî, मी	44	.....	Nŏ, नौ
9	.....	Ra, रा	27	.....	Pŏ, पौ	45	.....	No, नो
10	.....	Goo, गु	28	.....	Po, पो	46	.....	
11	.....		29	.....		47	.....	Nă, न
12	.....	Rî, री	30	.....	Pă, प	48	.....	Na, ना
13	.....	Gŏ, गौ	31	.....	Pa, पा	49	.....	
14	.....	Go, गो	32	.....		50	.....	So, सो
15	.....		33	.....		51	.....	
16	.....	Gă, ग	34	.....	Pi, पि	52	.....	
17	.....	Ga, गा	35	.....		53	.....	Sa^1, $सा^1$

CHAPTER IV.

Structure of Scales.

There are three different points of view from which the structure of a scale may be explained. In that aspect of a scale, which is historically the oldest, it may be considered as the collocation of two smaller scales of unitary character. This may be called its 'composite' aspect. In its second aspect a scale may be viewed as the amalgamation of two groups of notes in each of which the notes cluster round a particular note as its centre. This may be called its 'bi-centric' aspect. In its third aspect a scale is a chain, i.e. to say, a continuous series of consonant notes. This may be termed its 'continuously consonant' aspect. Viewed from different standpoints, all of these aspects of a scale are equally important. The structure of a scale must, therefore, be examined separately in relation to each of these aspects.

A. Composite Character of Scales.

(a). Consonant Relationships amongst notes : The object of all music being the production of pleasurable feeling in the mind of the listener, any rational explanation of the structure of scales on which music is based must start with the hypothesis that the relationships subsisting amongst the notes constituting a scale are capable of producing such feeling. The science of acoustics and experimental psychology have proved that only the relationships of consonance possess this property. It is a remarkable phenomenon that not only human beings, but also such insentient creatures as birds give forth, in certain felicitous conditions of the mind, notes which are consonant to each other. There are indeed some dissonant relationships which play an important part in the musical art. But as these relationships have no independent value of their own and must be related through consonant relationships in order to be acceptable, we must confine our attention to the consonant relationships only in our

attempt to explain the structure of scales. We have seen above that while dissonant relationships are limitless, the consonant ones are only six in number. In order that a scale may be fit for being used in music, its notes must, therefore, be connected with each other by some one or other of these six relationships.

(b). **Sāman Chants the source of Indian Melody :** From all the historical evidence available regarding the origin of melody it has been generally assumed that short phrases of a few notes combined in different orders according to the racial characteristics of different nations marked the earliest stage in the history of melodic development of these nations. The structure of the ancient liturgical chants of different nations have been found to be very similar. The Vedic chants, which are the oldest in the world, are stated to have been composed originally of two to four notes. We are told in the Nāradiyā Shikshā that the Rik Mantras were chanted with two notes, the Gāthās with three notes and the Sāman Mantras with four *notes.*[1] Melody in the proper sense of the term appears to have commenced with the Sāman chants ; as, all writers on Indian secular music mention these chants as the source of melody. Though the Sāman scale was extended to seven notes at a later period, there is no doubt that in its earliest stage it concisted of only four notes. This is evident from the fact that four of the notes of the full scale were always called by numerical names unlike the other three and thus made distinguishable from them. These were named Prathama (first), Dwitiya (second), Tritiya (third) and Chaturtha (fourth) in the descending order. Though the three other notes, added subsequently to constitute the full scale, were also given numerical names at a later period, they were originally called by the names Mandra, Krushta and Atiswāra. The notes Mandra and Krushta were put at the

1 "एकांतरः स्वरो ह्यृक्षु गाथासु द्व्यंतरः स्वरः।
सामसु त्र्यंतरं विद्याद् एतावत् स्वरतोऽन्तरम्॥"

"In the Riks the notes have only one interval between them, in the Gāthās there are two such intervals and in the Sāmans there are three".

Nāradiyā Shikshā, I, 2-3

lower and the upper ends respectively of the original tetrachord and Atiswāra was placed below Mandra. The order in which the notes were added cannot be definitely ascertained. Dr. A. C. Burnell tells us in his small brochure on Sāman chants that the seventh note of the scale was never actually *used*[2]. Only five notes are used in the two chants named "Gautamasya Parkah" and "Kāshyapasya Barhishyam" whereof notations have been given by him in the brochure. It would thus appear that the number of notes used in these chants seldom exceeded five. In the Nāradiyā Shikshā we find that the Ahvārakas used a transilient tetrachord consisting of the three-notes, the Tritiya, the Prathama and the Krushta ; and the Taittiriyas used a full tretrachord consisting of the Dwitiya, the Tritiya, the Chaturtha and the *Mandra*[3]. The latter is a tetrachord different in character from the original one. We thus find that the Vedic chants were based usually on either tetrachordal or pentachordal scales of different character. A hexachordal scale also was possibly sometimes used.

Let us now examine the structure of these simple ancient scales on the assumption that their notes were bound together by some ties of consonant relationship, without which music would be indistinguishable from noise or cacophony. The most spontaneous and easily appreciated consonant relationship is the descending Fourth, which is the natural leap that the human voice takes in an affirmative sentence. A descending tetrachord may, therefore, be considered as the earliest stage in the evolution of scales. The tetrachord of the Sāman chants and that from which the Greek Doric Scale was formed, were both descending tetrachords. The consonant

2. Vide "The Sāman chants from the Ārsheya Brāhmana" by A. C. Burnell, Ph. D., in Raja Sourindra Mohan Tagore's "Hindu Music from Various Authors", p. 408.

3. The following verse gives the two tetrachords :—

"तृतीय-प्रथम-क्रुष्टान् कुर्वन्त्याह्वारकाः स्वरान् ।
द्वितीयाद्यांस्तु मन्द्रान्तां स्तैत्तीरीया चतुः स्वरान् ॥"

Nār Sh. I, i, 11.

interval which comes next to the descending Fourth as regards spontaneity is the ascending Fifth, which the human voice takes naturally in an interrogative sentence. So, the ascending pentachord may be regarded as the second stage in the development of scales. The ascending tetrachord and the descending pentachord must have come as later developments.

(c). Elementary and Perfect Tetrachords : Now, as a full tetrachord ordinarily consists of two tones and a semitone, we may have three kinds of tetrachords according to the position of the semitone. These are :— (1) S R G M

(2) S R G M

and (3) S R G M

As notes separated by a tone or a semitone are dissonant to each other the lowest note of a tetrachord may have only two notes consonant to it, viz., the third and the fourth notes above it. Likewise, the highest note of a tetrachord may have only two notes consonant to it, viz., the third and the fourth notes below it. Now, the third may be either a Major or a Minor Third. As in constructing a scale we would proceed naturally from the starting note to those notes only which are consonant to it, the most elementary tetrachord would be a transilient one, consisting of three notes with a leap of a Major or Minor Third from the starting note to the next higher or lower note, as the case may be. There would be two such ascending and two descending tetrachords, according to the direction of the progression. These are :—

Elementary Tetrachords.

Ascending
(1) Sa—Ga Ma
17 5
(2) Sa—Go Ma
14 8

Descending
(1) Ma—Rŏ Sa
17 5
(2) Ma—Rĕ Sa
14 8

If we now combine one of the Elementary Ascending Tetrachords with one of the Elementary Descending Tetrachords we would get four Perfect Tetrachords capable of being used both in ascent and in descent and having no gaps of a Third in them. These are :

Perfect Tetrachords.

(1) Sa Rǎ Gá Mà
8 9 5

(2) Sa Rǎ Go Ma
8 6 8

(3) Sa Rŏ Go Ma
5 9 8

(4) Sa Rŏ Ga Ma

Of these the Tetrachord No. 4, which contains two semitones and an interval which is much larger than a tone, is not to be found either in ancient India or in ancient Greece. According to the Nāradiyā Shikshā, the first four of the notes of the Shadja Grāma were identical with the notes of original tetrachord of the Sāman chanters. This is the Perfect Tetrachord No. 2 given above, in which the extreme notes have a Minor Third above or below them. The tetrachord of the Āhvārakas was the ascending Elementary Tetrachord No. 2; that of the Taittirīyas was the Perfect Tetrachord No. 1 in descending order ; and that, on which the Greek Scales were based, was the Perfect Tetrachord No. 3 also in descending order.

(d). Elementary and Perfect Pentachords : Adding the fifth note Pa to the Elementary Ascending Tetrachords we get the following two Elementary Ascending Pentachords :—

Elementary Pentachords.

Ascending

(1) Sa—Ga Ma Pa
17 5 9

(2) Sa—Go Ma Pa
14 8 9

If we descend from Pa as the starting note preserving the above relationships in the inverse order, we get the following two Elementary Descending Pentachords :—

Elementary Pentachords.

Descending

(1) Pa—Go Ra Sa
17 5 9

(2) Pa—Ga Ra Sa
14 8 9

Combining No. 1 of the one of these groups with No. 2 of the other, we get the following two Perfect Pentachords :—

Perfect Pentachords

(1) Sa Ra Ga Ma Pa
9 8 5 9

(2) Sa Ra Go Ma Pa
9 5 8 9

No example of the use of these pentachordal scales has been found out in the Vedic *chants*[4].

(e). Elementary and Perfect Hexachords : If either the Major Sixth Da or the Minor Sixth Do be added to the Elementary Ascending Pentachords, we get four Elementary Ascending Hexachords from Sa. These are :—

Elementary Ascending Hexachords.

(1) Sa—Ga Ma Pa Da
17 5 9 8

(2) Sa—Go Ma Pa Da
14 8 9 8

(3) Sa—Ga Ma Pa Do
17 5 9 5

(4) Sa—Go Ma Pa Do
14 8 9 5

4. The scale used in Gautamasya Parkah and Kāshyapasya Barhishyam, as it appears from the notations given by Dr. Burnell, who examined it with the help of a standard pitch-pipe cannot be considered to be a pentachordal scale, because the interval between the lowest and the highest notes is not a Perfect Fifth, but a badly dissonant interval called tritone consisting of two tones and two semitones.

We may, similarly, have four descending hexachords from Da or Do. These are :—

Elementary Descending Hexachords.

(1) Da—Ma Ga Ră Sa
17 5 9 8

(2) Da—Mi Ga Ră Sa
14 8 9 8

(3) Do—Mo Go Rŏ Sa
17 5 9 5

(4) Do—Ma Go Rŏ Sa
14 8 9 5

Now the Elementary Ascending Hexachord No. 1 has four notes in common with the Elementary Descending Hexachords No. 1, viz., Sa, Ga, Ma and Da. So, If we combine the two, the note Pa of the former will fill up the gap of the latter, and the note Ră of the latter will fill up the gap of the former. We shall thus have a Perfect Hexachordal Scale capable of being used both in ascent and in descent.

Similarly, the Elementary Ascending Hexachord No. 4 and the Elementary Descending Hexachord No. 4, which have four notes in common, can be combined to form another Perfect Hexachordal Scale. The other hexachords cannot be so combined for want of common notes. We thus get the following two hexachords :—

Perfect Hexachords

(1) Sa Ră Ga Ma Pa Da
8 9 5 9 8

(2) Sa Rŏ Go Ma Pa Do
5 9 8 9 5

The first of these hexachords, known in Europe as the Hexachord of Guido of Arezzo, was the normal scale for singers of that continent throughout the middle ages [5].

(f). The Greek Heptachord : We have now reached the limit in the size of Perfect Scales of unitary character. As the seventh is dissonant to the starting note, we cannot get it.

5. Vide Helmholtz's "Sensations of Tone", p. 351

directly from that note. A perfect heptachordal scale of unitary character is, therefore, not possible. A heptachordal scale of composite character can, however, be had by combining two tetrachords. The ancient Greek Heptachordal Scale was constructed in this method. Two or more tetrachords were collocated, first by conjunction, secondly by disjunction, and thirdly by alternate conjunction and disjunction in order to form the ancient Greek scales. The Heptachord was constructed by collocating two similar tetrachords by conjunction, *i.e.* to say, by so placing one tetrachord after another that the highest note of the lower one was made the lowest note of the higher one. The structure of the Greek Heptachordal Scale of the diatonic genus may be shown thus : —

Greek Heptachord.

b c d e f g a

1 2

The two tetrachords which are shown by braces and marked 1 and 2 are exactly similar in character, the semitone being placed between the first and the second notes and also between the fourth and fifth notes. In order to understand the relationships amongst the notes of the above scale, it may be put in the following form :—

Na Sa Ra Ga Ma Pa Da

5 9 8 5 9 8

In this scale the starting note Na has no Perfect Ffth above it and the last note Da no Perfect Fifth below it. Every note of the lower tretachord, has however, a Perfect Fourth above it. This is a particular (tetrachordal) aspect of our Scale of Origin.

(g). The Greek Lesser and Greater Perfect Systems : Now, if another similar tetrachord be added to the above scale by conjunction, we would get the following scale : —

b c d e f g a b♭ c d

In this scale which was called by the Greeks the "Lesser Perfect System", the eighth note bb was a note different from the initial b and dissonant to it. The latter was called "Hypate" and the former "Trite". This shows that the Greeks did not consider a note and its octave as identical as we now do. It was subsequently discovered that the scale was much improved if the Trite was raised by a semitone, which made it very concordant with the initial note Hypate. This new note was named "Paramese" and the third tetrachord was made to begin from that note, the name Trite being now applied to the next higher note. The last two tetrachords which were formerly conjunct were thus made disjunct. It was now perceived that the best scale was formed by collocating similar tetrachords by alternate conjunction and disjunction. A fourth tetrachord was finally appended to the third by conjuction, thus completing the full scale of fourteen notes, known as the "Greater Perfect System". Here the question arises : how was the position of the initial note of the third tetrachord to be fixed ? It could only be had as a Perfect Fifth of the initial note e of the second tetrachord. This relationship having been discovered, the notes of the third tetrachord could now be had as Fifths of those of the second one and not as Fourths as in the case of conjunct tetrachords. It is doubtful whether the Greeks clearly appreciated the fact that the intervals of the Fourth and the Fifth made up the interval of an Octave or that notes separated by an Octave were so concordant with each other that they could be considered as identical, as they always called the notes so separated by different names. The identity of the Octave was, however, established at the earliest stages of the development of the complete scale in Indian Music. This is evident from the fact that we find nowhere in ancient musical literature more than seven names for musical notes. We find the same seven names applied to notes of the three *sthānas* or octaves of Indian music.

(h). Combination of two Unitary Scales : The Octa-

chord Scale of the Greeks was composed of two disjunct similar tetrachords. It may be shown as follows :—

e f g a b c d e

The gap a-b between the two tetrachords in the above scale, which was descending in character, is a dissonant interval of a tone, which cannot be easily bridged. This can only be done by taking the down-ward leap of a Perfect Fifth from the initial note e of the upper tetrachord.

The easier and more rational method for constructing the complete scale would, therefore, be to extend the upper tetrachord by a Fifth below its initial note e and then starting the lower tetrachord from that note. The upper tetrachord is thus converted into a descending pentachord. The complete scale should, therefore, be considered as composed not of two similar tetrachords but of a pentachord and a tetrachord. Most of the scales are constructed on this principle. There are, however, a few scales in use which must be considered as composed of two similar tetrachords, the most conspicuous amongst them being the scale used in Râga *Rāmakali.*

We have seen above that the Scale of Origin may be conceived as a Heptachord Scale composed of two conjunct similar tetrachords. If it is started from Ga, it would also appear as an Octachord Scale composed of two disjunct similar tetrachords. Thus :

Ga Ma Pa Da Na Sa Ra Ga

It is, however, remarkable that the same scale may also be considered as composed of a pentachord and a tetrachord. This may be shewn in the following way :—

Scale of Origin.

Sa	Ra	Ga	Ma	Pa	Da	Na	Sa[1]
9	8	5	9	8	9	5	

It will be observed that the portion of the scale from Sa to Pa is Perfect Pentachord No. 1 and the portion from Pa to Sa^1 is Perfect Tetrachord No. 1.

A complete scale must, therefore, be considered not as a single unitary scale, but as a composite scale made up of a pentachordal and a tetrachordal unitary scale. For some purposes it may also be considered as a combination of two tetrachords, either conjunct or disjunct.

B. Bi-centric Character of Scales.

(a). **Scientific basis :** Every Unitary Scale is, as shown above, composed of two scales of elementary character, one of which is ascending and the other descending. An Elementary Scale is constructed by starting from a certain note and placing either above or below it two or more notes, all of which are consonant to it. These notes may be dissonant to each other ; but, they are bound together by the common bond of the starting note, which is consonant to all of them. The starting note is, therefore, the centre round which the other notes cluster and by which they are held together. The concluding note of an Ascending Elementary Scale can be made the starting note of a Descending Elementary Scale and the concluding note of the latter can be made the starting note of the former. A Perfect Unitary Scale, which can be used both in ascent and in descent has, therefore, one centre at the time of ascent and another at the time of descent. It must, accordingly, be considered as bi-centric in its character, one of the centres being placed at each extremity.

Now, as the first five notes of the Scale of Origin constitute a pentachord and the last four a tetrachord, and as a note is identical with its octave, the lower centre (Sa) of the pentachord is the same as the upper centre (Sa^1) of the tetrachord and the upper centre (Pa) of the former is the lower centre of the latter. So, the same two notes which are the centres of the pentachord are also the centres of the tetrachord. The full scale is, therefore, also bicentric in character.

Doubts about the number of centres may arise in the case of scales, which are considered tetrachordal in structure. The four Perfect Tetrachords mentioned above can give rise to four Tetrachordal Scales by collocation of two conjunct similar tetrachords and four others by that of two disjunct similar tetrachords. All these eight scales have each apparently three central notes, of which one is common to both the constituent tetrachords. The first four scales are Heptachords and the other four Octachords. The original Greek Heptachord, which consisted of two conjunt Perfect Tetrachords No. 3, was supplanted by the Octachord formed by two such disjunct tetrachords. The latter was evidently found to be better and more useful than the former and subsequently gave rise to the national Greek scale known as the "Doric". The Heptachordal Scales are practically useless ; because, in the first place, their starting notes are dissonant to their concluding notes ; and, secondly, the former have no Perfect Fifths above them and the latter have no Perfect Fifths below them. Co-ordination of the constituent tetrachords of these scales is, therefore, almost impossiple. The Octachordal Scales, however, stand on a quite different footing, as they are free from the aforesaid defects. Comparison of the Heptachordal and Octachordal Scales formed by two conjunct and disjunct similar Perfect Tetrachords No. 4 may be made by way of example :—

Heptachord :	Sa	Rŏ	Ga	Ma	Pŏ	Da	Nŏ	
		5	12	5	5	12	5	
Octachord :	Sa	Rŏ	Ga	Ma	Pa	Do	Na	Sa^1
		5	12	5	9	5	12	5

It will be observed that the starting note Sa of the Heptachord is dissonant to its concluding note Nŏ ; whereas, the starting note Sa of the Octachord is identical with its concluding note Sa^1 ; that Pŏ, the fifth note of the Heptachord, is dissonant to its starting note Sa ; whereas, Pa, the fifth note of the Octachord, is consonant (Perfect Fifth) to its starting note Sa ; and that Ga, the third note of the Heptachord, is a dissonant fifth

below its concluding note Nŏ ; whereas, Ma, the fourth note of the Octachord is a consonant fifth (Perfect Fifth) below its concluding note Sa^1. Co-ordination of the two tetrachords constituting the Octachord is, therefore, quite easy. In actual practice, the lower tetrachord of this scale has in upward progression to be converted into a pentachord by extending it to Pa, the perfect Fifth above the starting note Sa, and the upper tetrachord has in downward progression to be converted into a pentachord by extending it to Ma, the Perfect Fifth below the concluding note Sa^1. Two different scales have, therefore, to be used, one in ascent and the other in descent, both of which are composed of a pentachord and a tetrachord. The pentachords of these scales are, however, not perfect. The pentachord of the ascending scale has to be made perfect by omitting Rŏ, the second note of the scale, and that of the descending scale by omitting Na, the seventh note of the scale, Th

Ascending Scale: Sa × Ga Ma $\overset{*}{\text{Pa}}$ Do Na $\overset{*}{\text{Sa}}^1$

Descending Scale: $\overset{*}{\text{Sa}}$ Rŏ Ga $\overset{*}{\text{Ma}}$ Pa Do × $\overset{*}{\text{Sa}}^1$

The Ascending Scale has Sa and Pa and the Descending Scale has Ma and Sa^1 as central notes. Both these Scales are bi-centric. The full scale is, therefore, also bi-centric in practical use.

The above-mentioned Octachordal Scale, which is nominally tetrachordal, is in reality penta-tetrachordal. It is very popular in Hindusthanî music and known as Bhairava Mela. The only other so-called tetrachordal scale which can be used in melodic music is the Octachordal Scale formed by two disjunct similar Perfect Tetrachords No. 2. This scale appears to be very rarely used. The observations made regarding the above-mentioned Octachordal Scale apply *mutatis mutandis* to this Octachordal Scale also. These two are double Scales and must be considered as practically bi-centric in character. The other two Octachordal Scales formed by disjunct Perfect

Tetrachords Nos. 1 and 3 are only different species of octave of the two scales of truly bi-centric character which have been termed below Primary First and Fourth Scales and identical with the Major and Minor Scales of Europe.

(b). Historical evidence : Ancient and Modern Indian music : From a scientific analysis we thus find that every scale is essentially bi-centric in character. Historical study also shows that scales have been considered bi-centric by every civilized nation which can be credited with a properly developed melodic system. Turning first to ancient Indian music, we find that the oldest secular scale known as the 'Shadja Grāma' was recognized as bi-centric, as will appear from the following passages of 'Sangîta Ratnākara of Shārngadeva.

> "Shadja is principal, because it is the beginning and also because it has the largest number of *Amātyas.* Madhyama is foremost in the scale, because it is *non-omissible*". [6]

The word *Amātya* used in the above passage is synonymous with *Samvādî* or consonant. So, Shadja was considered as one of the principal notes, not only because it was the starting note of the scale, but also because it was closely related to the largest number of notes in the scale. This is, as we have seen the main criterion for ascertaining the centre of a scale. In the Sangîta Makaranda, attributed to the sage Nārada, the author compares the position of Shadja and Madhyama in the scale to that of Brahmins, the highest class in the Indian social order.[7]

6. 'षड्जः प्रधान आद्यत्वाद् अमात्याधिक्यतस् ततः ।
ग्रामे स्याद् अविलोपित्वान् मध्यमस् तु पुरःसरः॥"

7. "समौ ब्रह्म समौ ज्ञेयौ ।"

Sangîta Ratnākara, I, 4, 6.

"Sa and Ma are to be known as Brahmins"
Sangîta Makaranda.

In the passage of Sangîta Ratnākara quoted above, the Madhyama is said to derive its position of importance from its non-omissible character. This character of the note is to be attributed to its pre-eminent position in the scale used by the Sāman chanters, as will appear from the following passage of Bharata's Nātya Shāstra :

"Madhyama is the foremost of the seven notes and it is indestructible. It is ordained in the Gāndharva Kalpa and also by the Sāman *Chanters*". [8]

This importance of Madhyama is due to the fact that it is indentical with Prathama, the starting note of the original tetrachordal scale of the Sāman singers. This will be evident from the following passage of the Nāradiyā Shikshā :—

"The note which was *Prathama* (first) of the Sāman Chanters is Madhyama of a flute (*i.e.*, secular music), that which was *Dvitiya* (second) is Gāndhāra, *Tritiya* (third) is Rishabha and *Chaturtha* (fourth) is Shādja".[9]

The tetrachord of the Sāman singers being a descending scale, its fourth or highest note was called first (Prathama) and the first or lowest note called fourth (Chaturtha). The secular scale, which was developed from it, being mainly an ascending scale the order was reversed and Shadja became the starting note and the original starting note became the Madhyama or middle note as three other notes were added above it. As the tetrachord was now used both in ascent and in descent, the starting notes of the new ascending and the old descending scales became both equally important. Thus, the full secular scale came to have two centres, the Shadja

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8. "सप्तस्वराणां प्रवरो ह्यनाशी चैव मध्यमः।
गांधर्वकल्पे विहितः सामगैरपि मध्यमः॥"

9. "यः सामगानां प्रथमः स वेणोर्मध्यमः स्मृतः।
यो द्वितीयः स गांधारस् तृतीयस् त्वृषभः स्मृतः॥
चतुर्थः षड्ज इत्याहुः * * *"

and the Madhyama, of which the latter being of Vedic origin came to be regarded as non-omissible.

How these two centres functioned in the ancient melodic system before the introduction of the Jātis does not appear from the ancient writings. The only evidence regarding their use is to be found in the rock inscription of Kudimiyāmālāi, which is supposed to belong to the seventh century A.D. This inscription contains seven compositions for instrumental music based on the seven ancient basic modes, which include the Shadja Grāma. Each of these compositions is divided into four to seven sections. Each section contains four phrases of four notes each, every one of which concludes with the same note. The phrases of the first sections of all these compositions conclude with Sa ; and the phrases of the last sections of five of these compositions conclude with Ma, the concluding note of the last sections in the remaining two compositions being Pa. These facts show that originally Sa and Ma were the central notes of the modes, and that subsequently Sa and Pa came to be regarded as the central notes of two of the modes. This latter circumstance points to the fact that the pentachord was beginning to attract popular attention and so was placed at the lower end of two of the modes.

It is thus evident that Shadja and Madhyama or Panchama were rgarded as the two central notes not only of the Shadja Grāma but also of the other modes which were added to the system later on.

This state of things changed completely in the Jāti system. The central notes, appeared in different names in different Jātis. They could now be ascertaind not by means of names common to all the Jātis, but only by their functions. The two notes which were functionally the most important in a Jāti are, therefore, to be considered as the centres of the scale on which the Jāti is based. These were known as the Amsa and the Nyāsa. One of the most important functions of the Amsa was to start a melody. This is evident

from the fact that the Graha (initial note) was always identical with the *Amsa*.[10]

Amsa is thus defined in the Bhāratīya Natyā Shāstra :

"That note, wherein the Rāga resides and wherefrom it starts, whereof the fifth note determines the lower and upper limits, which is perceived very strongly in the midst of a combination of many notes, whereof the perfectly and imperfectly constant notes are strong, which is to be served (by the other notes) by being used as the Graha, the Apanyāsa, the Vinyāsa, the Sanyāsa and the Nyāsa, is the Amsa, having ten characteristics."[11]

The above passages have been quoted in full not only because they give a clear exposition of the ten characteristics of an Amsa as it was conceived in ancient India, but also

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10 ग्रहास् तु सर्वजातीनां अंशवत् परिकीर्तिताः ।"

"The Grahas of all Jātis are the same as the Amsas".

Bhāratiya Natya Shāstra
Chap. 28, verse 75.

Again,

अंशवच् च ग्रहास् त्वासां सर्वासां एव नित्यशः ।"

"The Grahas of all these (Jātis) are always the same as the Amsas.

Ibid. 28, 98

11 रागश् च यस्मिन् वसति यस्माच् चैव प्रवर्तते ।
मंद्र-तार-विषया च पंचस्वरपरा गतिः ॥
अनेकस्वर-संयोगे योऽत्यर्थम् उपलभ्यते ।
अन्यच् च बलिनो यस्य संवादी चानुवाद्यपि ॥
ग्रहापन्यास-विन्यास-संन्यास-न्यास-योगतः ।
परिचार्यः स्थितो यस् तु सोंऽशो स्यात् दशलक्षणः ॥"

Ch. 28. V. 76-78

The fifth line of the printed editions of the work is incorrect. We have corrected it according to the passage quoted by Kallinātha in his well-known commentary on Sangita Ratnākara.

because they substantially represent the conception of Amsa in the modern Rāga system. The word "Rāga" in the first line does not convey the same idea as it does in the modern system. It should be understood to imply simply 'melodiousness', as we shall see below that the Jātis were quite distinct from the modern Rāgas. The Apanyāsa, the Vinyāsa, the Sanyāsa and the Nyāsa were the concluding notes of different sections of a melodic composition. Of these the Nyāsa was the note placed at the full close of a piece.

The above passages would seem to imply that the Amsa was the only important note in a Jāti, which was used in all the different functions mentioned. This is however, far from the truth. The Nyāsa was a note as important for a Jāti as the Amsa, if not more. For, we find that the seven pure (shuddha) Jātis, which were the earliest of their kind, were named Shādjî, Ārshabhî and so on after the seven notes of the Indian gamut, which were used as their Nyāsas, Shadja being the fixed Nyāsa of Shādjî Jāti, Rishabha that of the Ārshabhî Jāti and so on. The number of Jātis was subsequently increased to eighteen, and each of these Jātis except one had only one particular note as its Nyāsa. The number of Amsas of most of the Jātis was, however, more than one. This apparently anomalous feature of Jātis can be explained only by the assumption that each of the notes named was considered equally fit for being used as an Amsa, though only one of them could be used as such at a time. The character of the Jāti, therefore, depended mainly on the Nyāsa, and only in a secondary way on the Amsa. It is thus evident that the Amsa and the Nyāsa or the starting and the concluding notes were considered, as the two most important notes in a Jāti. The importance of these notes continued in the Rāga system, which was the direct descendant of the Jāti system and retained most of the features of the latter. We accordingly find all Sanskrit writers on modern music without exception mention these two notes as the most important characteristic features of a Rāga. Writers on

modern Hindusthānî music and musicians have, somehow acquired the custom of calling these notes Vādî and Samvādî instead of Amsa and Nyāsa. The Amsa was known as the Vādî in ancient times also. But, the word Samvādî, as now used in nothern India, is a rather unhappy term, as it literally means 'perfectly consonant'. The custom evidently owes its origin to the fact that the Nyāsa was always perfectly consonant to the Vādî. But, as there are two notes which are perfectly consonant to the Vādî, the term Samvādî applied to the Nyāsa, becomes ambiguous. This unfortunate substitution of the word 'Samvādî' for the word 'Nyāsa' in modern north Indian music is responsible for a lot of confusions regarding the functions of one of the two most important notes of a Rāga amongst musicians and writers on music. It is, however, observed that the Samvādî is almost invariably used as the Nyāsa in all good compositions.

(c). Ancient Greek and Medieval European Music : The bi-centric character of scales was also perceived by the ancient Greeks. Prof. Helmholtz in his "Sensations of Tone" shows from certain passages in Aristotle's "Problems" that the note *Mese, i.e.*, to say, the tone on the middle string of the Greek musical instrument was used as the starting note and the note *Hypate, i.e.* to say, the tone played by the forefinger was used as the concluding note in all good compositions. The words of Aristotle apply to the national Doric scale of the Greeks which begins with E (Ga). The *Mese* was the fourth note of this scale corresponding to A (Dha) and the *Hypate* was the initial note corresponding to E (Ga). These two were thus the starting and the ending notes of a descending tetrachord. The *Mese* of the Greek Doric scale was, therefore, analogous to the Amsa used as the Graha in an Indian Jāti, and the *Hypate* was analogous to the Nyāsa. That the other notes of the scale were tuned to the *Mese* and related to it would be evident from the following passages of Aristotle quoted by Prof. Helmholtz :—

"Why do the other tones sound badly when the tone of the middle string is altered ? but if the tone of

the middle string remains, and one of the others is altered, the altered one alone is spoiled ? Is it because that all are tuned and have a certain relation to the tone of the middle string and the order of each is determined by that ? The reason of the tuning and connection being removed, then things no longer appear the *same*".[12]

As the other notes were tuned to the *Mese*, it was naturally made the starting note of all melodies like the Graha of the Jāti system. In the thirty-third problem Aristotle states : "Why is it more agreeable to proceed from high pitch to low pitch than from low pitch to high pitch ? Can it be that we thus begin at the beginning ? for the tone of the middle string is also the leader of the tetrachord and highest is pitch. The second way would be to begin at the end instead of at the beginning. Or can it be that tones of lower pitch sound nobler and more euphonious after tones of high pitch ?" It is clear from this passage that the main tetrachord of the Doric scale was a descending tetrachord and that *Mese* was its "leader" and starting note. It also appears that the Greeks had a special liking for descending scales. In order that the relationships of the notes to the *Mese* might be perceived clearly and maintained correctly throughout a composition, the Mese appears to have been repeated frequently. In the nineteenth problem Aristotle says :—

"All good melodies often employ the tone of the middle string, and good composers often come upon it, and if they leave it recur to it again, but this is not the case with any other tone".[13]

As regards the concluding note of Greek melodies, the Hypate, Aristotle states in the fourth problem that, as

12. Aristotle, "Problems", XIX, 36
quoted by Helmholtz in "Sensations of Tone"

13. Aristotle, Problem, XIX, 20.

opposed to its neighbour, the tone of the lowest pitch but one (due to the string of highest position but one, or Parhypate), it is sung with complete relaxation of all the effort that is felt in the other. Prof. Helmholtz thinks that this description of Aristotle implies that the Parhypate was a kind of descending "Leading Note" to the Hypate, which concluded the Greek melodies. We shall have to deal, in a subsequent chapter, with the significance of the Leading Note, which is of great importance in modern music.

We have seen above that the national Greek scale, the Doric, was considered as composed of two disjunct similar tetrachords. The principal tetrachord was placed at the beginning of this scale and its extreme notes, the *Mese* and the *Hypate*, were the two centres of it.

It has been shown that if each of the two tetrachords be a Perfect Unitary Scale, there would be three centres in the full scale and not two. But, there is no evidence to show that any note other than the *Mese* and the *Hypate* had a prominent place in the scale. Whatever the theory, in practical music, therefore, the notes of a Greek scale were tuned to one or other of the aforesaid two centres. The consequence was that the upper tetrachord was enlarged and converted to a Perfect Pentachord whereof the starting note was the Nete (the octave of Hypate) and the concluding note was the Mese. The positions of these two centres of the scale were confused when the use of seven Modes or Species of the Octave of the Doric scale was introduced by Aristoxenus and his disciple Cleoneides (circa 310 B.C.) by starting from each of the seven notes. Claudius Ptolemæus (140-160 A.D.) converted these seven Modes of the Doric scale to seven distinct scales and reduced them to such forms by the use of chromatic notes that the initial note of each of them became the Hypate and the fourth the Mese like those of the old Doric Scale. Thus, in each of the seven scales of Ptolemy the first and the fourth notes became the centres. Some of these were, however, not correct scales scientifically. It appears from the names of these scales that three of them were formed by

adding the prefix Hypo (=low) to the names of three others. The relation of a Hypo-prefixed scale to its unprefixed counterpart was that the former started from the fourth note (Mese) of the latter.

The Hypate of the original scale was thus placed fifth above the Mese, which was made the initial note of the scale derived from it. In the Hypo-prefixed scales the two centres were, therefore, placed fifth from each other. This may be illustrated from the Doric Scale in the following way :—

	*			*				
Doric Scale—	e	f	g	a	b	c	d	e
Hypo-doric	*				*			
Scale—	a	b	c	d	e	f	g	a

The second of these was evidently a different form of the first. Ptolemy seems to have missed this aspect of the interrelationship of the scales, as he called the fourth note of all the scales by the name Mese. The successors of Ptolemy, on the other hand, placed the two centres of all the scales fifth apart from each other by placing an additional note Proslambanomanus below each scale and calling the fifth note by the name Mese. The successors of Ptolemy, thus, erred in the opposite direction. For, if the prefix Hypo had any significance, the centres of an original scale being placed fourth from each other, those of its hypo-prefixed counterpart ought to be placed fifth from each other. There should, therefore, be as many Hypo-prefixed scales as there are original ones, each pair consisting of two forms of the same scale. The scales should, therefore, be even in number. The followers of Ptolemy seem to have felt this necessity when they added an eighth scale, thus equating the derivative scales with the original ones. This practice appears to have continued afterwards in medieval European music. For, we find that in Ecclesiastical music, which followed the traditions of Greek music, those scales, which were called "Authentic" and considered as the original scales, had the first and the fifth notes as their centres, the latter being called the "Media", corresponding to the Oreek "Mese" and the former the "Final," corresponding to the Greek "Proslamb-

anomanus". The tradition of the Hypo-prefixed scales led to the introduction of the scales known as "Plagal". The order of the scales of later European music and that of ancient Greek music were, however, just the reverse of each other; for, as seen above, in the latter the original scales had the first and fourth notes as their centres, whereas those in the former had the first and the fourth notes as the centres. This shows that amongst ancient peoples the tetrachord was the only unitary scale known and was placed at the beginning of each original scale and that the pentachord, when discovered later on, became more popular and was, therefore, placed at the begginning of each original scale in all later musical systems.

(d). Modern European Music. In modern European music, which recognizes only two scales, the centres are the first and the fifth notes as in the Authentic Modes of Ecclesiastical music. There are no scales now corresponding to the "Plagal" Modes. The "Final" is now called the "Tonic" and the "Media" the "Dominant". As regards the functions of the two centres, the first note called the Tonic is always used as the concluding note, but the Dominant is never so used. This practice, which is in accord with that of Ecclesiastical music, is contrary to that of ancient Greek music, in which the Hypate corresponding to the Dominant of the Modern European music was always used as the concluding note instead of the Mese, which corresponded to the Tonic of modern system. Prof. Helmholtz finds nothing unscientific or inartistic in this custom of ancient Greek music[14].

(e). Modern Hindusthanî Music: In the ancient Indian Jāti system there was no restriction regarding the use of these

14. "Ancient Greek music seems, then to have deviated from ours by ending on the dominant instead of the tonic. And this is in full agreement with the intonation of speech. We have seen that the end of an affirmative sentence is likewise formed on the Fifth (Fourth ?) next below the principal tone. This peculiarity has also been generally preserved in modern recitative, in which the singer usually ends on the dominant".
"Sensations of Tone" p. 242

centres. In modern Hindusthānî music too we find the same freedom in the use of the central notes, as the Samvādî (Nyāsa) may be either the fourth or the fifth note above or below the Vādî. There is, therefore, no historical evidence to prove that only one of the two central notes of a scale is capable of being used as the "final".

(f). The two centres quite similar in position and function : In modern European music that centre of a scale which stands fifth below or fourth above the other is considered as the "key-note" or "the Tonic." Let us, therefore, examine whether there is any superiority in the position of this centre over the other. If we analyse the Scale of Origin, which is identical with the European Major Scale, we find the following relations of Sa and Pa :—

First, they are perfectly consonant to each other ;

Secondly, there is only one note in the scale, which is related to both of them, viz., Ga ;

Thirdly, each is related to two notes which are unrelated to the other. Ma and Da are related to Sa, but unrelated to Pa. Ra and Na are related to Pa, but unrelated to Sa.

The relations of the two centres may be shewn thus :—

Notes related to Sa—	Ga	Ma	Pa	Da
	17	22	31	39
Notes related to Pa—	Na	Sa^1	Ra^1	Ga^1
	17	22	31	39

The figure given below a note indicates the number of nonatones separating it from the centre concerned. It will be observed that not only the number but also the kind of the relationships of both the centres are quite identical. These relationships are : Major Third, Fourth, Fifth and Major Sixth. The two notes unrelated to each centre are those situated next above and below it in the scale. It follows from these facts regarding the two centres that so far as the notes related to one of them are concerned it stands on the same footing as the other and may serve the same functional purpose. Each of them may, therefore, be taken as the starting note

or used as the final. The starting note of the so-called "authentic" as well as that of the so-called "plagal" form of a scale may thus be taken as its "Key-note" and used as the "final". The two forms of the Scale of Origin are given below from the same starting note, the relationships of the other notes to it being shewn in nonatones noted below each note :—

Authentic Form	*Sa	(Ra)	Ga	Ma	*Pa	Da	(Na)	Sa[1]
		9	17	22	31	39	48	
Plagal Form	*Sa	(Rǎ)	Ga	*Ma	Pa	Da	(Nǎ)	Sa[1]
		8	17	22	31	39	44	

(g). Uncertainty and ambiguity of two notes in uni-centric conception of scale : It will be observed that if the second and the seventh notes, which are put within brackets, are left out, then there is no difference between these two forms. The second and the seventh notes of these forms, being unrelated to the starting note, would be uncertain and ambiguous, if a scale is concieved as uni-centric and the two notes cannot be related to some other fixed note of the scale. The only notes other than the starting note which are fixed in these scales, are the fourth and the fifth, the remaining two notes, viz., the third and the sixth may be made either major or minor. If the two uncertain notes are related to the fifth the scale becomes "authentic" and if they are related to the fourth it becomes "plagal". So, if we are to make the positions of the second and seventh notes certain we must connect them either with the fifth or the fourth note, the only two fixed notes in the scale other than the starting note.[15] We shall see in a succeeding chapter that the second and

15. While dealing with Tonal Modes used in homophonic music in Chapter XIV, Pagee 240, of his "Sensations of Tone" (English Edition), Prof. Helmholtz observes : "When speaking of these systems of tones, it becomes a question of essential importance for our present purpose, to enquire whether they are based upon any determinate reference of all the tones in the scale to one single principal and fundamental

the seventh notes, as Downward and Upward "Leading Notes", have very important functions to perform in melodic structure. We cannot afford to leave them as uncertain notes in the scale.

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tone, the tonic or *Key-note*. Modern music effects a purely musical internal connection among all the tones in a composition, by making their relationship to one tone as perceptible as possible to the ear. This predominance of the tonic, as the link which connects all the tones of a piece, we may, with Fétis, term the principle of tonality".

It is evident from these observations that the relationship of all the notes of the scale to a single note must, according to the above conception of tonality, be clearly perceptible to the ear. But, the relationship to the tonic of the two notes most adjacent to it, is not at all perceptible to the ear, because they are dissonant to it. Regarding these notes, the learned professor says that "the intonation of the Second and the Seventh is partly undetermined". The definition of the tonic given above cannnot, therefore, be satisfied with regard to any note treated as the tonic of any known scale.

Prof. Helmholtz elsewhere describes the Second and the Seventh as *ambiguous intercalary* tones, which may change according to the direct relationship which they may bear either to the fourth or the fifth note of the scale. The only way for removing this supposed ambiguity of these two notes is to accept either of the last-mentioned two notes as the second central note of the scale. The learned professor, however, leaves no room for such ambiguity with regard at least to the Seventh, when he recognizes its importance as the Leading Note, which must have a fixed position in the scale. The Leading Note cannot be related to the Fourth, being badly dissonant to it, separated as it is from it by a tritone. It must be related to the Fifth or the Dominant as the Major Third above it. By this relation of the Seventh the Second also becomes fixed in its position as the Perfect Fourth below the Dominant. The Leading Note can have no significance unless it is connected with the final, to which it is dissonant, through the Dominant to which both are consonant. For a perfect cadence, therefore, the Dominant is as important as the Final. In fact, we proceed in this cadence from one centre of the scale to the other through the Leading Note. Here we have an ascending cadence. We may have a descending cadence with the Second as the Downward Leading Note. These cadences are essentially melodic in character. The ascending cadence may be written as g b c′ and the descending cadence as g d c. These two cadences are blended together to form the "authentic cadence"

It is, therefore, absolutely necessary that we should accept either the fifth or the fourth note as the second centre of the scale, the starting note being the first.

(h). Lower and Upper Tonics (Adhara and Uttara Amsas) : We have shown above that a scale has two centres which are similar in every respect. They should, therefore, have

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in harmonic music, which is in its essence of the form

b c′, the two Leading Notes being combined with the
g

d c

Dominant to form the penultimate chord. The notes c and g of the final chord are redundant, because there is no use of repeating g, which occurs in the penultimate chord, and e being consonant to both c and g does not help the cadence, the essence of which is resolution of the dissonance of the two concluding notes. In the authentic cadence the centre g functions as the Dominant or the strong note and the centre c functions as the Final or concluding note. In the "plagal" cadence these functions are reversed and c acts as the strong note or Dominant and g acts as the Final. The two notes adjacent to g, viz., f and a, which are dissonant to it, now serve as the Upward and Downward Leading Notes to the Final g. The melodic ascending cadence would then be c^1 f^1 g^1 and the descending cadence would be c^1 a g. These blended together would give f^1 g^1 as the harmonic
c^1

a g

plagal cadence in its essential form. The notes c and e of the usual final chord are redundant, because c occurs in the preceding chord and e is of no help to the cadence. These and other features of the different kinds of cadence in their melodic aspect will be dealt with fully in chapter XIII on the character of Rāgas. For our present purpose, it will be sufficient to state that the above facts go to prove that the notes c and g of the Diatonic Major Scale are in actual practice both made to function as either the Dominant or the Final and that they should have the same appelation 'Tonic' or 'Keynote', being both equally important centres of the scale. The Dominant has been used with good effect as a pedal note sustained through all the chords of selected passages in a composition either singly or together with the Tonic by renowned composers like Beethoven, Bach and Handel. This fact further demonstrates the functional equality of the so-called Dominant with the so-called Tonic.

a common name. In ancient India they were called "Amsas". We shall call them both "Tonics" in English. Taking the "authentic" as the original form of the scale, we shall call its initial note the Lower Tonic, in Sanskrit—Adhara Amsa ; and the fifth note the Upper Tonic, in Sanskrit-Uttara Amsa. These names will be used irrespective of the actual positions which the notes occupy in the plagal or other forms of the scale. They are both to be considered as the "Key-notes" of the scale.

The Tonic character of the Dominant is admitted by Prof. Helmholtz in his scientific explation of the ancient Greek Hypo-phrygian or Ionic Mode, which he calls the Mode of the Fourth. We give below his explanation of this Mode, the initial note of which he accepts as the Tonic :

"On examining the relations of F, the Fifth below the tonic C, the following scales result :

Ascending Scales

Related to C : c - - - e - - f - g - a - - - c^1
F : c - d - - - - f - - - a - bb -

This gives

(5) The Mode of the Fourth (ancient Greek Hypophrygian or Ionic) :

c	-	d	-	e	-	f	-	g	-	a	-	bb	-	c^1
1		$\frac{10}{9}$		$\frac{5}{4}$		$\frac{4}{3}$		$\frac{3}{2}$		$\frac{5}{3}$		$\frac{15}{9}$		2

etc., etc."

From these ratios it will be clear that this Mode is the Plagal form of the Diatonic Major Scale (our Scale of Origin). It is formed by starting from the Fifth g of that scale, which becomes the Tonic of the Mode and is renamed C ; the original Tonic c, which becomes the fourth note of the Mode, being renamed f. The Second and the Seventh notes of this Mode, being related to f, the renamed original Tonic, are, it will be noted, neither ambiguous nor indeterminate. The original Dominant being taken as the Tonic, the original Tonic cannot reasonably be considered to have lost its character simply because it changes its position and name. We, therefore, come to the irresistible conclusion that both the notes are equally important as centres of the scale.

C. Continuously Consonant Character of Scales :

(a). A chain of consonant notes : In its third aspect a scale is a chain of consonant notes. This feature follows naturally from the fundamental principle that a scale must be based on the relationship of consonance. The musical faculty of man is concerned only with consonances. The pitch of a note can be correctly ascertained only when it is consonant to the preceding note. When after singing a certain note we take another note of definite pitch, which is dissonant to it, we have a third note either actually preceding or fixed in our memory, which is consonant to both. The pitch of this dissonant note cannot be definitely ascertained without actual precedence or memory of the common consonant note. It follows from this that in true music we always preceed from consonance to consonance. The bicentic character of a scale, shown above, also points to this fact ; for, all the notes of the scale are consonant to one or other of its two centres, which are themselves consonant to each other. But, this bicentric character does not nesessarily point to a continuous chain of consonances of a uniform nature. The notable feature of a scale is that it is actually a chain of this character.

(b). Not a chain of Fifths : Of the six consonant relationships Fourth, Minor Sixth and Major Sixth being the inversions of Fifth, Major Third and Minor Third respectively, the latter three may be taken as the primary consonant relationships. In order, therefore, to make the scale a chain of uniform structure all the links in it must be either Fifths or Thirds. In ancient Europe the Pythagorians considered the scale to be a chain of Fifths. Let us see how far this view is scientifically correct.

We have seen that the note Ma of our Scale of Origin is a Fourth, i.e., to say, 22 nonatones above its starting note Sa. The note Sa^1 of the next higher octave is a Fifth above Ma ; because, a Fifth added to a Fourth makes an octave (22+31=53). The note Pa is a Fifth above Sa. If we

place another Fifth above Pa, that note would be 31+31=62 nonatones above Sa. As 62 is greater than 53, which represents an octave, by 9 nonatones, this last note would be Ra^1, which is 9 nonatones above Sa^1 of the higher octave. We thus get the following series of four notes placed a fifth from each other :—

$$Ma_1 \ldots Sa \ldots Pa \ldots Ra^1$$
$$31 \quad 31 \quad 31$$

All these four notes are constituents of the Scale of Origin. If we now place another Fifth above Ra^1, that note would be forty (9+31=40) nonatones above Sa^1. The sixth note Da of the above-mentioned scale is, as we have seen, situated 39 nonatones above Sa. The new note is, therefore, one nonatone (*i.e.*, a comma) above Da and is to be called $Dâ^1$. Another Fifth above $Dâ^1$ would give a note seventy one (40+31=71) nonatones above Sa^1. Subtracting 53 from 71, we get 18. This note is, therefore, 18 nonatones above Sa of the second higher octave. The third note Ga of our Scale of Origin is 17 nonatones above Sa. The new note is, therefore, one nonatone above Ga^2; and is to be named $Gâ^2$. The Fifth note above $Gâ^2$ would be a note 49 (18+31=49) nonatones above Sa^2, *i.e.*, one nonatone higher than the 7th note Na^2, which is 48 nonatones above Sa^2 and is to be named $Nâ^2$. We thus get the following chain of seven notes placed a Fifth apart from each other :

$$Ma_1 \cdots Sa \cdots Pa \cdots Ra^1 \cdots Dâ^1 \cdots Gâ^2 \cdots Nâ^2$$
$$31 \quad 31 \quad 31 \quad 31 \quad 31 \quad 31$$

The last three notes of this chain do not occur in our Scale of Origin. Let us divide this chain into two parts, bring the three notes of the second part two octaves lower and place them below the four notes of the first part in the following way :—

$$Ma_1 \cdots\cdots Sa \cdots\cdots Pa \cdots\cdots Ra^1$$
$$Dâ_1 \cdots Gâ \cdots Nâ$$

The note Dâ is 40 nanatones above Sa. $Dâ_1$ is, therefore, 13 (53−40=13) nonatones below it and is consequently, also 18 nonatones (31−13=18) above Ma_1.

The note Gâ is, as we have already seen, 13 nonatones below Pa. The Note Nâ is 49 nonatones above Sa. It is, therefore, 18 nonatones (49−31=18) above Pa, and consequently also 13 nonatones below Ra^1, the Fifth above Pa. Placing $Dâ_1$ between Ma_1 and Sa, Gâ between Sa and Pa and Nâ between Pa and Ra^1, we get the following series :—

Ma_1	$Dâ_1$	Sa	Gâ	Pa	Nâ	Ra^1
18	13	18	13	18	13	

Any two consecutive notes of this series are dissonant to each other. Notes which are consonant Major Third to each other are separated by 17 nonatones and those which are consonant Minor Third to each other are separated by 14 nonatones. None of these relationships exist amongst the notes of the above series. Consequently, also consonant Major and Minor Sixths, which are inversions of the Thirds, do not occur in the scale based on this series. So, if a scale were constructed with notes of this series, it will contain only correct Fifths and Fourths and no correct Thirds and Sixths. Such a scale is colourless and insipid and almost useless for the composition of any good melody, though we are told some ancient peoples used to tune their scales in this way. This was known as the Pythagorean intonation and was used in ancient Europe for a long time.

(c). **A chain of Thirds :** A developed musical faculty cannot do without correct Thirds and Sixths. The above series can be improved by a very simple process. We have only to lower the notes *D*â, *G*â and *N*â by one nonatone each and thus convert them to Da, Ga and Na. With these changes the above series will appear thus :

Ma_1	Da_1	Sa	Ga	Pa	Na	Ra^1
17	14	17	14	17	14	

In this series correct Major and Minor Thirds are placed alternately. From the very arrangement of the notes it will be clear that this series contains the largest possible number of consonant relationships. It is, the basis of one of the best of scales, viz., the Scale of Origin. We have only to place Ma_1 and Da_1 an Octave higher and Ra^1 an Octave lower, in order

to have that scale. The chain of Fifths has been broken up in two parts, the first part consisting of Ma_1, Sa, Pa and Ra^1 and the second consisting of Da_1, Ga and Na. Instead of a continuous chain of fifths, we have now one of Thirds. Continuity of consonant relationships essential for a scale is, therefore, maintained through Thirds and not through Fifths.

The Scale of Origin is, thus, a chain of consonant Thirds so placed as to form also two chains of Fifths. The three notes Da, Ga and Na of one of these chains are variable and by their variations give rise to various scales, as we shall see later on. The four notes Ma_1, Sa, Pa and Ra^1 of the other chain are, however, fixed and unalterable and constitute, as it were, the *steel frame* of all scales.

(d). **The Scale Heptad :** This chain of Thirds is very important inasmuch as it shows at a glance the inter-relationship of the notes of a scale. As we shall have to make frequent reference to such chains, we shall call it the *Scale Heptad* (Grāma-Sāptaswarya).

For the sake of convenience it will be shown in a vertical position with the notes placed one above another according to their positions without any octave marks. Thus :

Ra
Na
Pa*
Ga
Sa*
Da
Ma

(e). **Pantads of the Tonics :** The two Tonics have been marked by asterisks. The five notes at the lower end and the five at the upper end of this Heptad, taken separately, give us the following two series :—

Pa	Ra
Ga	Na
Sa*	Pa*
Da	Ga
Ma	Sa

The note at the middle of the first of these series is, it

will be observed, Sa, called above the Lower Tonic (Adhara Amsa), and the note at the middle of the second series is Pa, called above the Upper Tonic (Uttara Amsa), of the scale. The first series is composed of the Lower Tonic and the four notes which are consonant to it, placed in a series of Thirds. We may call it the Pentad of the Lower Tonic. For similar reasons, the second series may be called the Pentad of the Upper Tonic. The scale may, therefore, be considered to be composed of the Pentads of its two Tonics.

(f). **Consonant Triads** : The Heptad of this Scale may also be divided into the following five consonant triads :—

Sa	Ga	Pa	Na	Ra
Da	Sa	Ga	Pa	Na
Ma	Da	Sa	Ga	Pa

The three notes constituting each of these triads are consonant to each other. In harmonic music they are sounded together and are said to form a "chord".[16] The largest number

16. In the harmonic system of music of Europe the scale is conceived as composed of the chords :

Pa	Ra	Sa
Ga	Na	Da
Sa	Pa	Ma

The first note of the scale Sa is, as we have seen above, called the Tonic, the Fifth note Pa is called the Dominant, and the Fourth note Ma is called the Sub-dominant. The three constituent chords are named after these three notes, which are called their "roots" and considered to be their fundamental notes. The Tonic and the Dominant are, as we have seen, the two central notes of the scale. But, the Sub-dominant cannot be considered to be of the same importance as these. It will be seen from its position in the Scale Heptad that the note Ma, like the note Ra, holds the worst position in the scale, both these notes having only two notes consonant to them. There is, therefore, no justification for regarding its chord as one of the constituents of the scale. The idea of a "root" is purely conventional and a chord may as well be considered to be a chord below its uppermost note as a chord above its lowest note. The scale may, therefore, be said to be composed of the chords above and below its two Tonics. These chords of a Tonic when combined constitute its Pentad.

of consonant triads that a scale can possess, is five. There are only two scales including the Scale of Origin which possess this maximum number of consonant triads. Other scales possess lesser number of such triads.

(g). **Break in the chain :** It will be seen from the Scale Heptad that the Major and the Minor Thirds are placed alternately, the lowest being a Major and the highest a Minor one. If we now extend this chain upwards by placing a Minor Third above Ra, we get a note which is sharper than Ma by one nonatone and is, therefore, to be called Mâ. This note is foreign to the scale. The note Ma which is the third note above Ra, is dissonant to it being separated from it by 13 nonatones. It is thus evident that there is a break in the chain of Thirds in a scale.

This feature of scales plays a very important part in the formation of what are known as transilient scales and also in the structure of the melodic types (Rāgas) of India, as will be seen in the chapters on Rāgas.

CHAPTER V.

PRIMARY SCALES

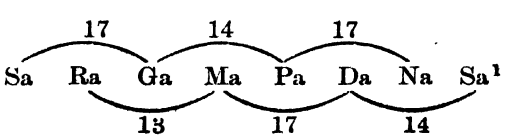
(Mukhya Grāmas).

Altogether twenty scales, sufficient for serving as the basis of all existing and possible melodic forms and compositions, can be constructed on the principles laid down in the last preceding chapter. These may be divided into two categories : Simple (Sarala) and Chromatic (Sālanga). Each of these classes may be sub-divided into two groups : A and B. In the present chapter we shall deal with Group A of Simple Scales, which will also be called Primary Scales (Mukhya Grāmas).

A. Structure of Primary Scales : Simple Scales, Group A.

(a). The two Perfect Scales : Having elucidated the principles underlying the structure of a scale in its three aspects and also fully explained the structure of the Scale of Origin according to those principles, we shall now examine another Scale of equal importance. The Scale of Origin is the most perfect of all ascending Scales, as it contains the largest possible number of consonant relationships in it. The Scale we are now going to explain is for similar reasons the most perfect of all descending Scales. The latter Scale is just the converse of the former and yet, as it may seem paradoxical, the two Scales are most apt to be confounded with each other being distinguishable by a single nonatone, which represents a comma.

If, confining ourselves within the octave from Sa to Sa[1], we proceed to examine the chain of Thirds in the Scale of Origin, we find that there is a break in the chain. This may be shown thus :—



The interval Ra to Ma consists of 13 nonatones and is therefore shorter than a Minor Third by one nonatone. The continuity of the chain of Thirds in a single octave may be preserved in two ways :

(1) by beginning the octave from Ga, thus avoiding the false Third Ra to Ma,

or

(2) by flattening Ra by a nonatone and making it Ră.

Thus :—

(1) Ga Ma Pa Da Na Sa¹ Ra¹ Ga¹
14 17 14
17 14 17

(2) Sa Ră Ga Ma Pa Da Na Sa¹
17 14 17
14 17 14

In the first of these octaves the tonality of the Scale remains unaltered. So, from the point of view of the continuity of consonances this is the best octave of the Scale of Origin and the melodic progression from note to note is the easiest in it. It is in this octave of the Scale, though in a different form, that the famous Rāga Todî is sung in one of its varieties called Bilāskhānî. In the second of the above octaves the tonality of the Scale is changed, and we get an altogether different Scale. The difference in the tonality of the two Scales will be clearly seen from their Scale Heptads. They are given below :—

Ra	Na
Na	Pa
Pa*	Ga*
Ga	Sa
Sa*	Da*
Da	Ma
Ma	Ră

The first Heptad begins with a Major Third at its lower end and the second with a Minor Third. Major and Minor Thirds are placed alternately in both.

(b). Converse Scales : The Tonics of the new Scale are Da and Ga, because each has its own Pentad. Beginning this Scale from its Upper Tonic and placing the notes of the Scale of Origin below it in a descending order, with the intervals in nonatones in each Scale we get :—

*Ga	Ma	Pa	*Da	Na	Sa¹	Rä¹	Ga¹
5	9	8	9	5	8	9	

*Sa¹	Na	Da	*Pa	Ma	Ga	Ra	Sa
5	9	8	9	5	8	9	

It will be noticed that the intervals of the consecutive notes of the two Scales, as shown above, are identical. This shows that the two Scales are converse to each other in the allocation of their intervals. The new Scale has been shown above with its Perfect Tetrachord placed below its Perfect Pentachord according to ancient custom. If the Pentachord be placed lower in the Scale according to modern custom, it would apear thus :—

*Da₁	Na₁	Sa	Rä	*Ga	Ma	Pa	Da

(c). Third Tonic : Hexachordal Scales : In this octave the Lower Tonic is placed at the beginning as in the Scale of Origin. The Heptads of the two Scales show that the Pentads of Sa and Ga occur in both of them. Therefore, Ga may be treated as the third Tonic of the ascending Scale and Sa as the third Tonic of the descending Scale. They will be called the Middle Tonic (Madhya Amsa) of their respective Scales. But, the difficulty with regard to this third Tonic is that, if we take it with any one of the other two Tonics, the two together cannot account for all the notes of the Scale. Thus, if in the First Scale we take Sa and Ga as the Tonics, they do not account for Ra, which is dissonant to both of them. So, if we want to have these as the only two Tonics of the Scale, we must leave out Ra and thus have a Hexachordal Scale. The note Ra is one of the two extreme notes of the Scale Heptad. Exclusion of the other extreme note Ma would give us another Hexachordal Scale with Pa

and Ga as Tonics. The other Scale would likewise give rise to two Hexachordal Scales by excluding Na and Ră, one with Sa and Da as Tonics and the other with Ga and Sa as Tonics. These four Hexachordal Scales are shown below :—

From First Scale	(1)	*Ga	Ma	Pa	Da	Na	*Sa¹
			5	9	8	9	5
	(2)	*Pa	Da	Na	Sa¹	Ra¹	*Ga¹
			8	9	5	9	8
From Second Scale	(1)	*Sa	Ră	Ga	Ma	Pa	*Da
			8	9	5	9	8
	(2)	*Ga	Ma	Pa	Da	Na	*Sa¹
			5	9	8	9	5

No. 1 of the First Scale is the same as No. 2, of the Second ; and No. 2 of the former and No. 1 of the latter, having the same note-relationships, are identical[1]. So, the distinction between the two Scales vanishes if the upper extreme note of the Heptad of one Scale and the lower extreme note of that of the other are omitted. The interval Ga to Sa¹, being a Minor Sixth, the Hexachord with these notes as Tonics, is to be called a Minor Hexachord. Similarly, the intervals Pa to Ga¹ and Sa to Da, being Major Sixths, the Hexachords with these notes as Tonics are to be called Major Hexachords.

It is in these Hexachordal forms that the Middle Tonics of the two Perfect Scales come into prominence. Hexachordal Scales are unitary in character, as seen in the last preceding chapter. The Middle Tonic also plays an important part in Unitary Trichordal Scales, which are to be found only as constituent parts of what have been called Chromatic Scales.

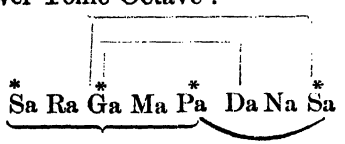
(d). **Largest number of Unitary Scales :** As perfect melodic phrases must be based on Unitary Scales, the comparative excellence of a composite full Scale depends on the number

1. For having correct tonality the Hexachord of Guido of Arezzo must be identified with No. 1 of Second Scale.

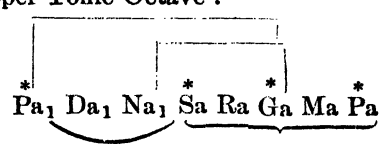
of Unitary Scales contained in it. In this respect too the above-mentioned two Scales are superior to all other Scales. They contain the largest number of the three kinds of Unitary Scales mentioned in the last preceding chapter. Each of these contains three Tetrachordal, one Pentachordal and two Hexachordal Unitary Scales. But all these six Unitary Scales are not to be found in the original Scale-octave which starts with the Lower Tonic. The octave starting either with the Lower Tonic or with the Upper Tonic in each Scale contains two Tetrachords, one Pentachord and one Hexachord. The octave starting with the Middle Tonic in each Scale contains three Tetrachords, and two Hexachords, but no Pentachords. The Pentachord, the two Hexachords and only one Tetrachord in each Scale start and end with a Tonic. The other two Tetrachords either start or end with a Tonic. The positions of the different Unitary Scales in the three octaves beginning with the three Tonics in each Scale are shown below by means of different braces.

Perfect Ascending Scale.

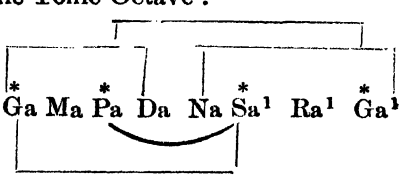
(1) Lower Tonic Octave :



(2) Upper Tonic Octave :



(3) Middle Tonic Octave :



Perfect Descending Scale.

(1) Lower Tonic Octave :

(2) Upper Tonic Octave :

(3) Middle Tonic Octave :

(e). **Shifting of Tonic-character :** We have seen that in order to convert the Perfect Ascending Scale into a descending one, we have to lower the second degree of the Scale by one nonatone (comma) and make it Ră. This alteration makes the note dissonant to Pa. The Pentad of the latter note being thus made deficient, it loses the character of a Tonic and in its place another note is provided with a Pentad and made a Tonic, viz, Da. The Tonic-character is thus shifted from one note to another by slight alteration of a single note. Four out of seven notes have been shown to have the Tonic-character in one or other of the two Perfect Scales. Out of the remaining three Ma and Na cannot be given this character by such slight change, because these two notes, though situated fourth from each other, make a very dissonant interval of three tones called a tritone, which is larger than Perfect Fourth by a semitone, and for that reason is also known as the Augmented Fourth (Vardhita Chaturtha). So, flattening or sharpening any of these notes by a nonatone cannot make their interval a

Perfect Fourth. They, therefore, cannot be provided with a Pentad by such a process. Of the only other notes Ra and Ră, the note Ra belonging to the Ascending Scale can be provided with a Pentad by sharpening the notes Ma and Da by a nonatone, thus making them Mâ and Dâ and Ră of the Descending Scale can be provided with a Pentad by flattening the notes Pa and Na by a nonatone thus making Pă and Nă. By these alterations Ra gets a consonant Third and a consonant Fifth above it, which it had not; Ră gets a consonant Third and a consonant Fifth below it, which it had not. The intervals are shown below for comparison :—

Ra	Ma	Da	Pa	Na	Ră
0	13	30	30	13	0
Ra	Mâ	Dâ	Pă	Nă	Ră
0	14	31	31	14	0

The Pentads of Ra and Ră will then stand thus :—

Dâ	Da
Mâ	Ma
Ra*	Ră*
Na	Nă
Pa	Pă

(f). Four Scale Heptads : So, if leaving out Ma and Da of the Heptad of the Ascending Scale we place Mâ and Dâ above it, and similarly by leaving out Pa and Na of the Heptad of the Descending Scale we place Pă and Nă below it, we get two new Heptads. We show below the four Heptads side by side, placing the Heptad of the Perfect Ascending Scale first and that of the Perfect Descending Scale last :—

No. 1	No. 2	No. 3	No. 4
Ra	Dâ	Ga	Na
Na	Mâ	Sa	Pa
Pa*	Ra*	Da*	Ga*
Ga	Na	Ma	Sa
Sa*	Pa*	Ră*	Da*
Da	Ga	Nă	Ma
Ma	Sa	Pă	Ră

(g). Two other Primary Scales: We thus get two other Scales, one having Pa and Ra and the other Ră and Da, as their Lower and Upper Tonics respectively. These Scales have no third Tonic as the notes between the two Tonics of these Heptads are Na and Ma, which, as seen above, can have no Pentads. The intervals between the consecutive notes of these two Scales are shown below in nonatones:

Scale No. 2: Sa *Ra Ga Mâ *Pa Dâ Na Sa¹
9 8 6 8 9 8 5

Scale No. 3: Sa *Ră Ga Ma Pă *Da Nă Sa¹
8 9 5 8 9 8 6

(h). The un-noticed interval: Pointed attention should be drawn to the fact that these Scales have got a hitherto unnoticed interval of six nonatones (Ratio $\frac{27}{25}$) shown above by a brace, which is larger than a Semitone by one nonatone and is, therefore, to be called a Major Semitone (Āyata Ardha-swana). [2]

The composite aspect of these Scales and the Unitary Scales contained in them may be shown thus :—

Lower Tonic Octave:

Scale No. 2: *Pa₁ Dâ₁ Na₁ Sa *Ra Ga Mâ *Pa

Scale No. 3: *Ră Ga Ma Pă *Da Nă Sa¹ *Ră¹

Upper Tonic Octave:

Scale No. 2: *Ra Ga Mâ *Pa Dâ Na Sa¹ *Ra¹

Scale No. 3: *Da₁ Nă₁ Sa *Ră Ga Ma Pă *Da

2. We donot know of any writer who has mentioned the existence of this interval. Mr. Ellis, the English translator of Helmholtz's "Sensations of Tone", who has mentioned these Scales, does not appear to have noticed this interval.

The Lower Tonic Octave of Scale No. 2 and the Upper Tonic Octave of Scale No. 3 have each one extra Tetrachord which neither begins nor ends with a Tonic. These Scales do not possess any Perfect Hexachord as they have no Middle Tonic. They bear to each other converse relationship. This may be shown by placing the notes of the Upper Tonic octave of Scale No. 3 in a descending order below the notes of the Lower Tonic octave of Scale No. 2 with the intervals in nonatones, thus :

Scale No. 2 : $\overset{*}{\text{Pa}}_1$ Dâ$_1$ Na$_1$ Sa $\overset{*}{\text{Ra}}$ Ga Mâ $\overset{*}{\text{Pa}}$
9 8 5 9 8 6 8

Scale No. 3 : $\overset{*}{\text{Da}}$ Pă Ma Ga $\overset{*}{\text{Ră}}$ Sa Nă $\overset{*}{\text{Da}}_1$
9 8 5 9 8 6 8

The intervals between the consecutive notes placed in the inverse order in the two Scales are identical. This proves that the Scales are converse to each other.

(i). The Fifth Primary Scale : The fifth in the Group of Scales we are dealing with in the present chapter is constructed on a principle which is different from that on which the four Scales explained above are construteed.

This difference is in regard to its composite character. Instead of being composed of a Tetrachord and a Pentachord like the other four Scales, it is composed of two Tetrachords. It is, therefore, a purely Tetrachordal Scale and has neither a Pentachord nor a Hexachord in it. It was this method which the ancient Greeks adopted in constructing their Scales as seen in the last preceding chapter. There is only one other Scale of tetrachordal structure which is very popular in India and is included in the next Group of Scales to be dealt with in the following chapter.

The Fifth Scale of this Group may be obtained either by sharpening the first note Sa of the Second Scale by one nonatone or by flattening the third note Ga of the Third Scale to the same extent. These notes then become Sâ and Gă respectively. We thus get two forms of the Fifth Scale, as shown below :—

Fifth Scale.

(1) Sâ Ra* Ga Mâ Pa+ Dâ+ Na Sâ¹
8 8 6 8 9 8 6

or (2) Sa Ră* Gă Ma Pă+ Da+ Nă Sa¹
8 8 6 8 9 8 6

The difference between these two forms is that every note of the second form is flatter by one nonatone than the corresponding note of the first form. The second form is, however, to be preferred, because the initial note should be the same in all Scales in order that the relationships of the other notes may be understood with reference to the same starting note (Sa).

This Scale has, it will be observed, only one Major Tone. The two Semitones which are marked by braces overhead are both Major. The two Prefect Tetrachords, of which the Scale is composed, will be brought to view in the octave which starts from the second note of the Scale, as shown below :—

Fifth Scale.

Ră* Gă Ma Pă+ Da+ Nă Sa¹ Ră*¹

The Tetrachords are here disjunct. They will be conjunct if we take an octave from either Pă or Da. The Tonic common to both the Tetrachords, which are exactly similar in chararcter, is Ră. It is the central note of the Scale Heptad which is given below :—

Fifth Scale.

Sa
Da+
Ma
Ră*
Nă
Pă+
Gă

The only note in the Scale which has got a *Pentad* is the central note (Ră). It is, therefore, the only note in the Scale

which can be considered a Tonic, in the strictest sense of the term. But no Scale, as seen above, can stand on a single Tonic; because, it cannot justify the existence in the Scale of the two notes which are next above and below itself. No single note in the Scale can explain the existence of both the notes Sa and Gă which are adjacent to the Tonic Ră. The Upper Tonic Pă of the lower Tetrachord can account for Gă and the Lower Tonic Da of the upper Tetrachord can account for Sa. These two notes are Perfect Fifths below and above the central note Ră. Although Ma can account for Sa and Nă for Gă, they are not Tonics of the Tetrachordal Scales; neither are they so closely related to Ră as are Pă and Da, being only Minor Thirds above and below it. Therefore, the notes Pă and Da must be considered to be the other two Tonics of the composite Scale, the former to be called its Lower Tonic and the latter its Upper Tonic. Ră, the principal Tonic, is to be called the Middle Tonic. The Lower and the Upper Tonics of this Scale have only three notes consonant to each, two of which are Thirds and one a Perfect Fifth, either above or below. Each of these notes, being deficient in Tonic-character, is indicated above by means of a cross overhead instead of an asterisk, by which the Middle Tonic is indicated.

A remarkable feature of this Scale is that it is converseless, being itself its own converse. This will appear from the identity of intervals if the notes of the Middle Tonic octave are placed in a descending order beneath the notes of the same octave. Thus:

*Ră	Gă	Ma	+Pă	+Da	Nă	Sa¹	*Ră¹
8	6	8	9	8	6	8	
Ră¹	Sa¹	Nă	Da	Pă	Ma	Gă	Ră
8	6	8	9	8	6	8	

(j). Similarity of Primary Scales: their Similar Forms: We have now got five Scales with different Tonics, including the Scale of Origin and four other Scales derived from it by alteration of certain notes in it by a nonatone. The difference

in the relative positions of the notes of these Scales is so slight they are apt to be confused with each other. These Scales have, on account of their similarity, been placed in the same Group, viz., Group A of Simple Scales. They will also be termed Primary Scales. These Scales are placed together below, in what may be called their "Similar Forms," with Sa as their initial note, so that the relative postions of their Tonics and their characteristic notes, which are italisized. may be observed :—

Similar Forms of Primary Scales.

First :	*Sa		Ra		Ga		Ma		*Pa		Da		Na	Sa[1]
		9		8		5		9		8		9		5
Second :	Sa		*Ra		Ga		*Mâ*		*Pa		*Dâ*		Na	Sa[1]
		9		8		6		8		9		8		5
Third :	Sa		*Ră*		Ga		Ma		*Pă*		*Da		*Nă*	Sa[1]
		8		9		5		8		9		8		6
Fourth :	Sa		*Ră*		*Ga		Ma		Pa		*Da		Na	Sa[1]
		8		9		5		9		8		9		5
Fifth :	Sa		*Ră		Gă		Ma		+Pă		+Da		Nă	Sa[1]
		8		8		6		8		9		8		6

The Semitones have been shown by braces. It will be observed that the number and order of Tones and Semitones are the same in all the five Scales, viz., two Tones, a Semitone, three Tones and a Semitone. They can be differentiated only by the character of these intervals, which are Major in some and Minor in others. So, they cannot be distinguished by means of equally tempered instruments with fixed key-boards (e.g. harmonium, piano etc.) in which the Tones are all of the same length and so also are the Semitones. They can be distinguished only by means of stringed instruments without frets or with movable frets.

(k). Equal prominence to be given to both the Tonics : We thus find that in these Diatonic Scales, in which notes

proceed by Tones and Semitones, all the notes except the starting note Sa are liable to alteration by a nonatone. The distinction brought about by this change is so slight that, for an ordinary singer or an untrained ear, it may be considered to be almost non-existent. An expert singer may perceive these minute distinctions and do indeed often feel them. But, without proper knowledge of tonal relationships he may fail to understand that they alter the tonality of a Scale. For a careless singer, therefore, the Scale proper for a certain Rāga is apt to be converted to another unconsciously, and thus, the character of the Rāga may be destroyed. Such unconscious conversion can be prevented only by paying proper attention to the Tonics and giving them due prominence. It should be pointed out that paying attention to only one of the Tonics is not sufficient for the purpose. For, it has been seen above that more than one Scale may have the same note as one of their Tonics. So, both the Tonics must be made equally prominent. For example, Pa is a Tonic of both the First and the Second Scales. So, if the Rāga be in the Second Scale, its other Tonic Ra must be brought to as much prominence as Pa ; otherwise, there is the danger of the Scale being unconsciously converted to the First Scale and the *Rāga* being thus spoilt.

B. Conversion of Primary Scales.

(a). Mutual Convertibility : A remarkable feature of these Primary Scales is their mutual convertibility. Any one of these Scales can be converted to any one of the others by altering one or more of its notes by a Semitone without changing the Tonics. These conversions have to be distinguished from those which a careless musician is apt to make by mere change of the Tonics and involuntary alterations of notes by a nonatone. These latter conversions only create a confusion of tonality of the Scales without producing any genuine aesthetic effect, being seldom perceptible either to the musician or to his listener. They are most often involuntary, the change of

Tonic being made through lack of knowledge of tonality of Scales. Such conversions are detrimental to the Rāga system of melody and should be carefully avoided. As the Primary Scales are distinguishable from each other by means of nona-tones, which are perceptible to only well-trained ears, they are apt to lapse into each other unless careful attention is paid to the Tonics. These lapses cannot be considered as conversions in the proper sense of the term. A true conversion is voluntarily made and clearly perceived, producing always a good æsthetic effect.

Every listener must have noticed that in the course of a melodic progression a note is sometimes introduced which appears to be quite unconnected with the Scale in which the melody is composed. This note is in some cases treated as only an ornamental one, which can be dispensed with without affecting the character of the Rāga. There are, however, other instances, in which the additional note is treated as one of the substantive notes of the Scale. In these cases the added note is evidently of much greater importance than that in the former cases. In any case, nevertheless, this note is arrived at by flattening or sharpening one of the notes of the Scale by a Small Semitone. It is considered as an altered form of the note from which it is derived. For example, the note Na is sometimes flattened and called Ṅo. The reason why a different consonant is not used to denote the new note is that an octave can never have more than seven notes. The additional note is, therefore, considered to be only a subititute for the note which is altered in order to get it, one of them being used only in ascent and the other only in descent. The altered position of the note is indicated by means of a different vowel.

It has been seen above that the seven notes of a Scale are linked together by a well-defined tonality, that is to say, inter-relationship of notes. The question, therefore, naturally arises : how is a note, which is foreign to the Scale, admissible in a melody and sometimes even held to be essential to it ? The answer to this question is that this note, though extraneous

to the original Scale, changes the tonality of that Scale and establishes with the unaltered notes a different tonality. The new note, in other words, introduces a new Scale. The original Scale is thus converted to another Scale.

(b). Flat and Sharp Conversions : Conversion may be of two kinds, viz., 'Flat Conversion' and 'Sharp Conversion'. 'Flat Conversion' is made by flattening a particular note of the Scale and 'Sharp Conversion' is similarly performed by sharpening another particular note by a Small Semitone. It has been observed that there are two notes in every Primary Scale, which are separated by an ugly dissonant interval called 'Tritone', and are never used as Tonics. These notes are Ma or Mâ and Na or Nă, according to the Scale in which they occur. The Flat Conversion is made by flattening Na or Nă by a Semitone of three nonatones (ratio $\frac{25}{24}$), which is called 'Small Semitone', and the sharp conversion is made by sharpening Ma or Mâ to the same extent.

To begin with the First Primary Scale, let us flatten the note Na of that Scale by a Small Semitone, that is to say, lower it by three nonatones. The interval between Da and Na, which was nine nonatones, now becomes six nonatones $(9-3=6)$ and that between Na and Sa^1, which was five nonatones, now becomes eight nonatones $(5+3=8)$. The note Na in its new position has to be renamed No. This alteration changes the tonality of the First Scale into that of the Second Scale. In other words, the note No converts the First Scale into the Second Scale.

This is shown below by placing together the converted First Scale and the Lower Tonic octave of the Second Scale in its original form :—

Flat Conversion of First Scale	* Sa	Ra	Ga	Ma	* Pa	Da	*No*	Sa^1	
	9	8	5	9	8	6	8		
Lower Tonic Octave of Second Scale	* Pa_1	$Dâ_1$	Na_1	Sa	* Ra	Ga	*Mâ*	Pa	
	9	8	5	9	8	6	8		

(c). Commonness of Tonics in Conversion : Conversion possesses a feature which is of paramount importance in melodic art. The asteriks overhead show that the Lower and Upper Tonics of the Second Scale in the new form are the same as those of the First Scale. Sa and Pa are now the Tonics of both the Scales. Conversion, thus, has the effect of bringing about commonness of Tonics between two Scales.

It will be observed that the note No of the Second Scale in its new form, corresponds with the note Mâ of that Scale in its original form. So, if we have to convert the Second Scale into the First, we must sharpen the note Mâ by three nonatones and make it Mî. This would give the Sharp Conversion of the Second Scale. The two forms of the First Scale are shown below :

Sharp Conversion of Second Scale	Sa	*Ra	Ga	Mî	*Pa	Dâ	Na	Sa^1
	9	8	9	5	9	8	5	
Ma Octave of First Scale	Ma	*Pa	Da	Na	*Sa^1	Ra^1	Ga^1	Ma^1
	9	8	9	5	9	8	5	

In this new form the First Scale has the same Tonics as those of the Second Scale, viz., Ra and Pa in place of Pa and Sa^1. Thus, we have commonness of Tonics either way, whether we convert one Scale to the other or *vice versa.* The note Mî of the new form corresponds with the note Na of the original form. So, it appears that the First and Second Scales are so related to each other that the former is converted to the latter by flattening the note at the upper end of the Tritone (Na) and the latter is converted to the former by sharpening the note at the lower end of the Tritone (Mâ).

The first four Primary Scales have been so arranged and numbered that any two consecutive Scales bear the same relationship to each other that has been shown above to exist between the First and the Second Scales. Therefore, any one of the first three Scales of the Group can be converted to

the Scale next after it, by flattening the note at the upper end of the Tritone. Conversely, any one of the last three Scales of the Group can be converted to the Scale next before it by sharpening the note at the lower end of the Tritone. In every case the result will be found to be commonness of Tonics.

(d). Conversion between the First and the Fourth Scales: The circle of conversions may be completed by converting the Fourth Scale to the First or *vice versa*. But, these conversions differ materially from those dealt with above both as regards their method and their effect. In them the converting note is obtained by flattening Na, or sharpening Ma by four nonatones instead of three (ratio $\frac{135}{128}$). The result of the flat conversion is shown below, the new note being Nŏ which is flatter than No by one nonatone.

Flat Conversion of Fourth Scale	* Sa	Ră	Ga	* Ma	Pa	* Da	*Nŏ	* Sa¹
	8	9	5	9	8	5	9	
Upper Tonic Octave of First Scale	* Pa₁	Da₁	Na₁	* Sa	Ra	* Ga	*Ma*	* Pa
	8	9	5	9	8	5	9	

In this Conversion the Lower Tonic Da of the Fourth Scale becomes the Middle Tonic of the First Scale, the Middle Tonic Sa of the former becomes the Upper Tonic of the latter, the Upper Tonic Ga of the former loses its Tonic-character in the latter and the note Ma of the former, which is not a Tonic, becomes the Lower Tonic of the latter. The common Tonics Sa and Da are related to each other as Minor Thirds or Major Sixths and not as Fifths or Fourths as in the other Conversions. A converse result is to be found in the Sharp Conversion which is shown below, the converting note being Mî, which is sharper than Mi by one nonatone :—

Sharp Conversion of First Scale	Sa	Ra	* Ga	*Mî*	* Pa	Da	* Na	Sa¹
	9	8	9	5	8	9	5	
Ma Octave of Fourth Scale	Ma₁	Pa₁	* Da₁	*Na₁*	* Sa	Ră	* Ga	Ma
	9	8	9	5	8	9	5	

Here Ga and Pa are the common Tonics, and Na which is not a Tonic of the First Scale becomes the Upper Tonic of the Fourth Scale. So, we find that in these Conversions there is not simultaneous commonness of both Lower and Upper Tonics, as in the other Conversions. There is, however, this peculiar feature in these Conversions that the notes Ma and Na, which are not Tonics in any original scale, emerge as such in them. The Fifth Primary Scale stands apart from the first four Scales, as it has no such relationship with them, as they have amongst themselves.

(e). Chromatic Note : Convertibility is a feature of Scales which is of great importance ; first, because, it is capable of bringing about commonness of Tonics between two Scales, and secondly, because, it produces powerful æsthetic effect by introducing a note foreign to the original Scale. The altered note is called Chromatic (Vikrita) Note and can be used either as a substantive or as an ornamental note in a melodic composition.

(f). Double, Triple and Quadruple Conversions : The Tritone of a Scale, which is composed of a Fourth and a Semitone and so called an Augmented Fourth, being reduced by a Semitone in the process of conversion, is converted to a Fourth. The Tritone of the Scale is consequenly shifted to another part of the Scale, two other notes being now separated by that interval. The converted Scale can be again converted to another Scale by flattening or sharpening the higher or the lower of the last-mentioned two notes. This is Double-flat or Double-sharp Conversion, the original Scale being now provided with two flat or two sharp notes. If the process is repeated there will be Triple-flat or Triple-sharp Conversion, giving three flat or three sharp notes. By Quadruple Conversion the converted Scale with four flat or four sharp notes will revert to the tonality of the original Scale. The importance of these Conversions will be seen in the section next following. The use of one Chromatic Note in melodic compositions is

very common, that of two is less common and that of more than two is very rare[3].

C. Common-Tonic Forms of Primary Scales.

(a). "Similar" and "Common-Tonic" Forms : In explaining the structure of Primary Scales, we presented them in forms, in which the notes are distinguishable by a single nonatone. This interval being very minute, the Scales are in these forms indistinguishable for an untrained ear and appear quite similar to each other. These have, therefore, been termed "Similar Forms" of Scales. These forms are very important; because, it is only by means of them that the confusion apt to be made about the tonality of these Scales can be avoided. In these forms either one or both the Tonics of one Scale are different from those of others. But in order to understand at a glance the difference in the tonality of these Scales it is necessary that both the Tonics (Lower and Upper) of all of them should be the same notes, so that the relationships of the other notes of one scale to these Tonics may be clearly distinguished from those of the other Scales. In other words, all the Scales must be reduced to what have been called "Common-Tonic Forms". It has been seen in the last preceding section that the process of Conversion brings about commonness of Tonics between the original Scale and the converted Scale. We can, therefore, with the aid of this process, reduce all the Scales to Common-Tonic Forms.

The names of the common Tonics would be those of the Scale which is taken as the starting Scale in the process of Conversion. If the First Scale be made the starting Scale the common Tonics would be Sa and Pa and all the chromatic (vikrita) notes would be flat notes. If, on the other hand, the Fourth Scale be taken as the starting Scale the common Tonics would be Ga and Da and all the chromatic notes would

3. Bhatkhande tells us that in some parts of India the Rāga Piloo is sung with five Chromatic Notes. We cannot see how this is possible. From the scientific point of view, the largest number of Chromatic Notes is four.

be sharp notes. The common Tonics would be either Pa and Ra or Rā and Da if either the Second or the Third Scale be taken as the starting Scale. In each of these latter two cases there would be an admixture of flat and sharp notes, which would be very inconvenient. The First and the Fourth Scales, being both perfect and superior to other Scales, are equally fit to be taken as starting Scales. The Fourth Scale held the first place among Scales in the musical systems of some ancient peoples. The Doric Scale of the ancient Greeks and the Gāndhāra Grāma of the Gandharvas of ancient India were identical with this Scale. But, the principal Scale of northern India and of Europe is the First Scale. We have taken this Scale as our Scale of Origin. We shall, therefore, take this as the starting Scale and reduce all Scales to Sa-Pa-Tonic forms by means of Flat Conversions. This is what may be called the Flat System of Scales, as distinguished from the Sharp System of Scales derived from the Fourth Scale as the starting Scale by means of Sharp Conversions. We shall, nevertheless, give at the end of this section the Ga-Da-Tonic forms of the Primary Scales included in the Sharp System.

(b). **Sa-Pa-Tonic Forms : the Flat System :** We have already got the Sa-Pa-Tonic Form of the Second Primary Scale by Flat Conversion of the First Scale. In order to have that form of the Third Scale we have to introduce another flat note into the Sa-Pa-Tonic Form of the Second Scale. The note of the first Conversion was obtained by flattening the upper note Na of the Tritone of the First Scale. But, by the alteration of the note Na the Tritone of the First Scale, which is an Augmented Fourth, has disappeared from the original octave of the Scale. We may have it in a different place by extending the octave. But, we may have it in another form in the original octave. The Tritone has two forms: the Augmented Fourth and the Diminished Fifth. If we take an octave of the First Scale from Ma to Ma^1 (of the higher octave), we find that the interval between Ma to Na contains three Tones and that between Na to Ma^1 contains two Tones and two Semitones, which make up three full Tones. The octave is, thus, equally

divided by these two intervals. The latter interval is, therefore, also a Tritone. But, it must be called "Diminished Fifth"; because, Ma^1 is fifth from Na and the interval is less than a Perfect Fifth by a Semitone. Let us see the position of the Tritone in the Sa - Pa - Tonic form of the Second Scale. Here it is :—

Sa-Pa-Tonic Form of the Second Primary Scale.

*Sa Ra Ga Ma *Pa Da No Sa^1

The Tritone between Ga and No, which is marked by a brace underneath, consists of two Tones and two Semitones, which are marked by curved braces overhead. It is, therefore, a Diminished Fifth. In order to have the Sa-Pa-Tonic form of the Third Scale we have to flatten the note Ga of that form of the Second Scale by a Small Semitone. The Third Scale will now stand as follows :—

Sa-Pa-Tonic Form of the Third Primary Scale.

*Sa Ra Go Ma *Pa Da No Sa^1
9 5 8 9 8 6 8

Original form *Ră Ga Ma Pă *Da Nă Sa^1 $Ră^1$
9 5 8 9 8 6 8

This form of the Third Scale has, thus, two flat notes No and Go. It is the Double-flat Conversion of the First Scale mentioned in the last preceding section. The Note Go is purposely placed after No in order to show the order in which the notes come in the processes of Conversion. The notes Go and Da in this form have a Tritone of three Tones, that is to say, an augmented Fourth between them. We have, therefore, to flatten Da by a Small Semitone in order to have the Sa-Pa-Tonic Form of the Fourth Scale. The flat note will then be

called Do. The Fourth Scale will now appear in the following form :—

Sa-Pa-Tonic Form of the Fourth Primary Scale.

	*Sa	Ra	Go	Ma	*Pa	Do	No	Sa¹
		9	5	8	9	5	9	8
Original form	*Da₁	Na₁	Sa	Rǎ	*Ga	Ma	Pa	Da
		9	5	8	9	5	9	S

This Form of the Fourth Scale contains three flat notes No, Go and Do. It is, therefore, the Triple-flat Conversion of the First Scale. The Fifth Scale being constructed on a different principle cannot have common Tonics with the other four in the same sense that they have. It would, however, be convenient to reduce that Scale to a form in which its Middle Tonic, which is its principal Tonic and its Upper Tonic are Sa and Pa respectively. We may have such form by flattening the note Ra of the Sa-Pa-Tonic Form of the Third Scale, which corresponds to Ga of the original form of that Scale, by one nonatone.

The Fifth Scale will then appear thus :—

Sa-Pa-Tonic Form of the Fifth Primary Scale.

				+	+				
	*Sa	Rǎ	Go	Ma	Pa	Da	No	Sa¹	
	8	6	8	9	8	6	8		
					+	+			
Original Form	*Rǎ	Gǎ	Ma	Pǎ	Da	Nǎ	Sa¹	Rǎ¹	
	8	6	8	9	8	6	8		

The Sa-Pa-Tonic Forms of the five Primary Scales may now be put together for the sake of comparison.

Sa-Pa-Tonic Forms of Primary Scales.

First Scale :	*Sa	Ra	Ga	Ma	*Pa	Da	Na	Sa¹
		9	8	5	9	8	9	5
Second Scale :	*Sa	Ra	Ga	Ma	*Pa	Da	*No*	Sa¹
		9	8	5	9	8	6	8
Third Scale :	*Sa	Ra	*Go*	Ma	*Pa	Da	*No*	Sa¹

Fourth Scale : *Sa Ra *Go* Ma *Pa *Do* *No* Sa¹
9 5 8 9 5 9 8

Fifth Scale : *Sa *Rǎ* *Go* + Ma + Pa Da *No* Sa¹
8 6 8 9 8 6 8

The notes which differ from the corresponding notes of the First Scale are italieized.

(*c*). **Ga-Da-Tonic Forms : the Sharp System :** Let us now find out the Common-Tonic Forms of these Scales starting from the Fourth Scale. These will be their Ga-Da-Tonic Forms. We have to start with Ga as the initial note in these Forms ; because, that note corresponds to Sa of the First Scale in its converse relationship with the latter. For having these Forms we have to proceed in the inverse order by means of Sharp Conversions. By sharpening the note Ma of the Fourth Scale by a Small Semitone, we get the Sharp Conversion of that Scale, which is equivalent to the Third Scale. It will appear thus :—

Ga-Da-Tonic Form of the Third Primary Scale.

*Ga *Mi* Pa *Da Na Sa Rǎ Ga¹
8 6 8 9 5 8 9

Original Form { *Da₁ Nǎ₁ Sa *Rǎ Ga Ma Pǎ Da
8 6 8 9 5 8 9

The note Sa in this Form now corresponds to the note Ma of the Original Form, as it stands a Diminished Fifth above Mi, which corresponds to Nǎ of the Original Form.

We have, therefore, to sharpen Sa by a Small Semitone and call it Si in order to get the Ga-Da-Tonic Form of the Second Scale, which will stand thus :—

Ga-Da-Tonic Form of the Second Primary Scale.

*Ga Mi Pa *Da Na Si Rǎ Ga¹
8 6 5 9 8 5 9

Original Form { *Ra Ga Mâ *Pa Dâ Na Sa¹ Ra¹
8 6 8 9 8 5 9

Here the note Pa corresponds to Mâ of the Original Form, as it is situated an Augmented Fourth below Si, which corresponds to Na of the Original Form. To have the First Scale, we have to sharpen this note by a Small Semitone and call it Pi. The First Scale now appears thus :—

Ga-Da-Tonic Form of the First Primary Scale.

	*Ga	Mi	Pi	*Da	Na	Si	Rĕ	Ga¹
	8	9	5	9	8	5	9	
Original Form	*Pa₁	Da₁	Na₁	*Sa	Ra	Ga	Ma	Pa
	8	9	5	9	8	5	9	

This Form of the First Scale is, thus, the Triple-sharp Conversion of the Fourth Scale with Mi, Si and Pi as its distinctive note.

In order to have the Ga-Da-Tonic Form of the Fifth Scale, we have to sharpen by a comma the note Rĕ of the Ga-Da-Tonic Form of the Second Scale, which corresponds to Sa of the Original Form of that Scale. It will then stand thus :—

Ga-Da-Tonic Form of the Fifth Primary Scale.

	*Ga	Mi	Pa	+Da	+Na	Si	Ra	Ga¹
	8	6	8	9	8	6	8	
Original form	*Rĕ	Gĕ	Ma	+Pĕ	+Da	Nĕ	Sa¹	Rĕ¹
	8	6	8	9	8	6	8	

The Ga-Da-Tonic Forms of the five Primary Scales are given below for covenience of comparison :—

Ga-Da-Tonic Forms of Primary Scales.

Fourth Scale :	*Ga	Ma	Pa	*Da	Na	Sa	Rĕ	Ga¹
		5	9	8	9	5	8	9
hird Scale :	*Ga	*Mi*	Pa	*Da	Na	Sa	Rĕ	Ga¹
		8	6	8	9	5	8	9

Second Scale : *Ga* *Mi* Pa *Da* Na *Si* Rä Ga_1
8 6 8 9 8 5 9

First Scale : *Ga* *Mi* *Pi* *Da* Na *Si* Rä Ga^1
8 9 5 9 8 5 9

Fifth Scale : *Ga* *Mi* Pa *Da* Na *Si* *Ra* Ga^1
8 6 8 9 8 6 8

The System prevalent in Northern India is mainly a Flat System[4], inasmuch as the present Scale of Origin there is the Primary First Scale. The Southern Indian System is an exclusively Sharp System, being based on a peculiar Scale of Origin, called Kanakāngî, which totally precludes the use of flat notes, by using sharp and double-sharp notes (Chatuh-shruti and Shat-shruti notes). In Southern India, however, the word *tîvra* (sharp) is not used. In Northern India the word is customarily applied only to the note Ma[5]. There are, in reality, other sharp notes in this system, which, as we shall see later on, are miscalled flat notes. For example, flat Ra (Ro) and flat Da (Do) used in such Rāgas as Mārvā and Paraja are really sharp Sa and sharp Pa.

4. The notes Sa and Pa have been considered as unchangeable notes in Indian music for long ages. This fact taken with the universal custom of tuning the *Tānpurā* and the *Mridanga* to these notes drives one to the legitimate inference that all Scales in India are in Sa-Pa-Tonic Forms. But, there are other facts which go to show that this inference does not hold good in all cases. Thus, for instance, it is a well-known fact that Rāgas are distinguished from each other by different *Vādîs* and *Samvādîs*, which are undoubtedly the Tonics of the Scales on which they are based. There is the other fact that in several Rāgas the note Pa is altogether left out. In these Rāgas, this note can, therefore, never be considered as one of the Tonics. These contradictory conceptions and practices have led to a good deal of confusion. Only a scientific study of the structure of Scales and their Modes can remove these conceptions and practices.

5. The word *tîvra* is applied by some musicians in Western India to the natural (*Shuddha*) notes. This practice is evidently wrong and must be abandoned.

CHAPTER VI.

Secondary, Transillient and Chromatic Scales [Gauna, Hinasvara and Sālanga Grāma].

A. Secondary Scales [Gauna Grāma]: Simple Scales, Group B.

(a). **The common "Steel Frame" and the changeable notes :** On an examination of the Common-Tonic forms of the first four Scales of Group A of Simple Scales (also called Primary Scales) it will be observed that the four alternate notes of their Heptads beginning with the lowest note are common to all of them. The Heptads of their Sa-Pa-Tonic forms are shown below :—

Heptads of Primary Scales.

Ra	Ra	Ra	Ra
Na	*No*	No	No
Pa*	Pa*	Pa*	Pa*
Ga	Ga	*Go*	Go
Sa*	Sa*	Sa*	Sa*
Da	Da	Da	*Do*
Ma	Ma	Ma	Ma
First	Second	Third	Fourth

The four notes which are common to these Heptads viz., Ma, Sa, Pa and Ra are thus unalterable and may be considered as the common "Steel Frame" of all these Scales. The three changeable notes intervening between the consecutive notes of the Steel-Frame of these Scales are found in four combinations, as follows :—

(1)	(2)	(3)	(4)
Na	No	No	No
Ga	Ga	Go	Go
Da	Da	Da	Do

In the first of these combinations all the notes are natural and in the fourth all are flat. In the second only one of the notes is flat. We may have two other combinations with one flat note, viz., Na Go Da and Na Ga Do. In the third we have two flat notes. We may have two other combinations with two flat notes, viz., Na Go Do and No Ga Do. These four new combinations may be arranged in the following order :

(5)	(6)	(7)	(8)
Na	Na	Na	No
Go	Go	Ga	Ga
Da	Do	Do	Do

(b). **Heptads of the first four Secondary Scales :** Just like the four combinations of notes in the preceding series those in this series are so arranged that one combination can be converted to the next following by alteration of a single note. If the notes of these last four combinations are now inserted between the consecutive four fixed notes characterized above as the Steel Frame of Scales, in the order in which they are placed above, we get four new Scales. These are included in Group B of Simple Scales, also termed Secondary Scales (Gauna Grâma) and numbered serially in the above order. The Heptads of these four Scales will stand thus :—

Heptads of four Secondary Scales.

Ra	Ra	Ra	Ra
Na	Na	Na	No
Pa*	Pa*	Pa*	Pa*
Go	Go	Ga	Ga
Sa*	Sa*	Sa*	Sa*
Da	Do	Do	Do
Ma	Ma	Ma	Ma
First	Second	Third	Fourth

The distinctive chromatic (vikrita) notes of these Scales are Go, GoDo, Do and DoNo respectively. The numbers of these Secondary Scales will be easily remembered if the order of these distinctive notes are fixed in the mind.

(c). **Importance of the Thirds :** It will be observed that the four unchangeable notes in each Scale constitute a series of Perfect Fifths. As a Perfect Fifth is made up of a Major Third and a Minor Third (31=17+14), one of these Thirds may be placed either above or below the other. These Thirds, which may be combined in eight different ways, constitute the eight combinations of the three changeable notes found in the eight Scales. The unchangeable Fifths being common to all the Scales, it is the changeable Thirds which distinguish one Scale from the others. As characteristic intervals, both in melodic and in harmonic music, the Thirds and their inversions the Sixths are, therefore, more important than the Fifths and their inversions the Fourths[1].

Importance of the Thirds is also evident from the feature of chain of Thirds by which all Scales are characterized.

(d) **Note-intervals of Scondary Scales :** The intervals

1. It is owing to this circumstance that a Scale which has a Major Third above its Lower Tonic is called a Major Scale and that having a Minor Third above that Tonic is called a Minor Scale in European music in view of the fact that the Third in the final chord in a piece of harmonic music determines the character of its Scale. In that sense there are four Major and four Minor Scales. This gives us another method of dividing the Scales into two Groups. This method is based on the uni-tonic theory of structure of Scales, in which the Lower Tonic is accepted as the only Tonic in a Scale. We have shown above that this theory is untenable and that we must accept the Upper Tonic as holding the same important position in a Scale as the Lower Tonic. As both the Tonics occur in the final chords and the note which is a Major Third above the Lower Tonic is a Minor Third below the Upper Tonic, and *vice versa*, the names Major and Minor Scales become misnomers. Other drawbacks of the aforesaid division is that it loses sight, in the first place, of the similar character of the Primary Scales and, secondly, of the convertibility into one another of the consecutive Scales of that Group. But, the most serious objection to the names given to the two Groups is that they are not applicable to half the total number of possible Scales, in which the Lower Tonic has both the Minor and Major Thirds above it, viz., the Chromatic Scales.

between the consecutive notes of the first four Secondary Scales are shown below in terms of nonatones :

The first four Secondary Scales.

First :	*Sa		Ra		*Go*		Ma		*Pa		Da		Na		Sa[1]	
		9		5		8		9		8		9		5		
Second :	*Sa		Ra		*Go*		Ma		*Pa		*Do*		Na		Sa[1]	
		9		5		8		9		5		12		5		
Third :	*Sa		Ra		Ga		Ma		*Pa		*Do*		Na		Sa[1]	
		9		8		5		9		5		12		5		
Fourth :	*Sa		Ra		Ga		Ma		*Pa		*Do*		*No*		Sa[1]	
		9		8		5		9		5		9		8		

(e). Similar and Converse Secondary Scales : If we sharpen the fourth and sixth notes of the First Scale by one nonatone each, making them Mâ and Dâ respectively, start from the fifth note of the Scale, and place the notes of the Fourth Scale underneath, we get

*Pa$_1$		Dâ$_1$		Na$_1$		Sa		*Ra		Go		Mâ		Pa		
	9		8		5		9		5		9		8			
*Sa		Ra		Ga		Ma		*Pa		Do		No		Sa[1]		
	9		8		5		9		5		9		8			

On comparison of the intervals between the consecutive notes of these two, it will be found that they are the same Scale, with different names of the notes. This shows that the First Scale can be converted to the Fourth Scale by sharpening two of its notes by a nonatone. The two Scales are, therefore, in character, similar. Consequently, they are apt to be confounded with each other in what may be called their Modal forms to be explained in a subsequent chapter.

These two similar Scales are converse to each other. This may be shown in the following way :—

First Scale : *Sa Ra Go Ma *Pa Da Na Sa¹
9 5 8 9 8 9 5

Fourth Scale : *Pa Ma Ga Ra *Sa No₁ Do₁ Pa₁
9 5 8 9 8 9 5

The Fourth Scale is here begun from the Upper Tonic and the notes are placed in the descending order below those of the First Scale. The converse relationship will be evident from the identity of the intervals between the consecutive notes given in nonatones.

The Second and the Third Secondary Scales are also converse to each other. This will be evident from the identity of the intervals between their consecutive notes, if the notes of the Upper Tonic Octave of the Third Scale are placed in a descending order below the notes of the Second Scale. Thus :—

Second Scale : *Sa Ra Go Ma *Pa Do Na Sa¹
9 5 8 9 5 12 5

Third Scale : *Pa Ma Ga Ra *Sa Na₁ Do₁ Pa₁
9 5 8 9 5 12 5

(f). Included Unitary Scales : The aforesaid four Secondary Scales are, like the Primary Scales, all composite Scales composed of a Perfect Tetrachord and a Perfect Pentachord.

The Second and the Third Scales include the additional Perfect Tetrachords Go Ma Pa Do and Na₁ Sa Ra Ga respectively. The Tonics of these Tetrachords are not the Tonics of the composite Scale. None of the four Secondary Scales include any Perfect Hexachord, as they have no Middle Tonics.

(g). The Fifth Secondary Scale : There is another very popular Scale included in Group B of Simple Scales which is constructed on a principle different from that underlying the

other Scales of that Group. This Scale may be obtained in two different forms by the process of conversion from the Second and the Third Scales of this Group. The second note Ra of the Third Scale is to be flattened by a semitone of four nonatones to get the first form and the fourth note Ma of the Second Scale is to be sharpened to the same extent to have the second form. The two altered notes would then be called Rŏ and Mî respectively.

The identity of these two forms of the Scales will be seen, if we take an octave from Pa of the second form and place the notes under those of the first form, giving the intervals in nonatones. Thus :

(1). *Sa Rŏ Ga +Ma +Pa Do Na Sa¹
5 12 5 9 5 12 5

(2). *Pa₁ Do₁ Na₁ +Sa +Ra Go Mî Pa
5 12 5 9 5 12 5

We shall take form No. 1 as the original form of this Scale ; because, it begins with Sa, which is the principal Tonic of the Scale, and has Pa as one of its subordinate Tonics, thus conforming approximately to the Sa-Pa- Tonic forms of other Scales. Like the Fifth Scale of Group A, this Scale is composed of two exactly similar Perfect Tetrachords and has neither a Perfect Pentachord nor a Perfect Hexachord in it. The two Scales are shewn below with their Perfect Tetrachords marked by braces overhead and the intervals given in nonatones :

Fifth Scale, Group A : *Sa Ră Go +Ma +Pa Da No *Sa¹
8 6 8 9 8 6 8

Fifth Scale, Group B : *Sa Rŏ Ga +Ma +Pa Do Na *Sa¹
5 12 5 9 5 12 5

It will be observed that there is a complete parallelism between these two Scales, the difference lying only in the character of the constituent Tetrachords. In the first of these the Lower Tonic of each Tetrachord has a Minor Third

above it, and the Upper Tonic has a Minor Third below it; while, in the second the Lower Tonic of each Tetrachord has a Major Third above it, and the Upper Tonic has a Major Third below it. It will also be easily understood from the positions of the intervals given above that the Fifth Scale of Group B is, like that of the other Group, converseless, being itself its own converse. The number and position of the Tonics of both of the Scales are also quite similar. This will be clear from the Heptads of the two Scales given below:

Fifth Scale, Group B.	Fifth Scale, Group A.
Na	No
Pa+	Pa+
Ga	Go
Sa*	Sa*
Do	Da
Ma+	Ma+
Rŏ	Ră

The central note (Sa) of the Heptad of the Fifth Scale, Group B, is the only note which has got a complete Pentad and is, therefore, to be considered its principal Tonic, like the central note (Sa) of the other Scale. The notes Ma and Pa at the extremities of the constituent Tetrachords, though deficient in Tonic property having only three notes consonant to them, are to be regarded as the Lower and the Upper Tonics respectively of the composite Scale on the same grounds on which they are taken as the Tonics of the corresponding Scale of Group A. The note Sa is, similarly, to be regarded as the Middle Tonic and marked by an asterisk, while the other two subordinate Tonics are marked by crosses.

Though these two Scales are defective in regard to the character of two of their Tonics, they possess certain interesting features which are absent in all other Scales. First, each of them is composed of two Perfect Tetrachords, which are quite similar to each other and also similar in ascent and in descent. Secondly, each of the composite Scales is also quite similar in

ascent and in descent. Thirdly, every note of the lower Tetrachord has a consonant Triad above it and every note in the upper Tetrachord has a consonant Triad below it.

(h). **The "Large Tone": Dissimilar Scales how distinguished:** We have seen that the five Primary Scales are all similar to each other and that this is one of the main reasons why they have been included within the same Group. The First and the Fourth Secondary Scales, which are also similar, have the same number of tones and semitones as the Primary Scales, viz., five tones and two semitones. They are to be distinguished by the features that the semitones in the former are separated by one tone and four tones and those in the latter by two tones and three tones. The Secondary Second and Third Scales have no relationship of similarity either with each other or with any other Scale. They are to be distinguished from other Scales by the features that they possess three semitones and also a peculiar interval which is apt to be mistaken for a Minor Third. This interval contains twelve nonatones and is thus shorter than a Minor Third by two nonatones. It has been named "Large Tone". The Fifth Secondary Scale is a remarkable Scale which stands apart from all other Scales, having in it four Minor Semitones, one Major Tone and two Large Tones. It is not possible under ordinary circumstances to distinguish between Scales which are similar to each other, inasmuch as it is very difficult for untrained ears and even for trained ears without pointed attention, which is not always possible, to differentiate between a Major and a Minor Tone or Semitone. That differentiation can be made only through a true appreciation of the consonant intervals. It is, however, always possible to distinguish between Dissimilar Scales by a cursory observation of the nature and allocation of the intervals between their consecutive notes. If ignoring the distinction of a comma, we indicate a Tone either Major or Minor by the letter T, a Semitone either Major or Minor by the letter S and a Large Tone by the letter L, the Dissimilar Scales can be disting-

uished in the following way, by the allocation of these intervals :—

Primary Scales :—	T	T	S	T	T	T	S
First and Fourth Secondary Scales	-T	S	T	T	T	T	S
Second Secondary Scale	-T	S	T	T	S	L	S
Third Secondary Scale	-T	T	S	T	S	L	S
Fifth Secondary Scale	-S	L	S	T	S	L	S

(i). The Trichordal Theory : We have seen that the Scales contain in them a varying number of consonant Triads, the maximum number being five and the minimum three. The Primary First and Fourth Scales possess five consonant Triads, the Secondary First and Fourth Scales possess three and all the rest including the Second, the Third and the Fifth Scales of each Group possess four. Leaving aside for the present the two Fifth Scales, we find that four of the notes of the remaining eight Scales are unalterable and connected in a chain of Perfect Fifths. The number of consonant Triads in a Scale depends upon the character of the Thirds intervening these Fifths. The Heptad of each of the above mentioned eight Scales may be considered to be composed of three consonant Triads. In the Scale of Origin (Primary First Scale) they are :—

Sa	Pa	Ra
Da	Ga	Na
Ma	Sa	Pa

The Thirds in these three Triads may be flattened and eight different combinations may, as shown above, be made with these three natural and three flat notes. Thus eight different Scales may be formed from these combinations. Each of these Scales, may, therefore, be considered to be composed of three consonant Triads or "Chords", as they are called in harmonic music. This is what is known as the

Tri-chordal structure of Scales[2]. The above-mentioned eight Scales can, no doubt, be explained by this Trichordal Theory and used as harmonic as well as melodic Scales.

But, that theory cannot account for the structure of a larger number of Scales, many of which are in almost daily use in India even today. For instance, the Secondary Fifth Scale, which is most popular throughout India as also the Primary Fifth Scale cannot be explained by that theory, inasmuch

2. In the English translation of Prof. "Sensations of Tone", Mr. Ellis works out the above-mentioned eight Scales and seven Modal forms of each of them on the basis of the Trichordal Theory in order to explain the structure of the Greek and the medieval European Modes from the harmonic point of view. The central Chord of the Heptad is called the Tonic Chord, that at its top the Dominant Chord and the lowest one the Subdominant Chord. A Major Chord is indicated by the syllable ma and a Minor by mi. A Scale is described by the character of its three constituent Chords. For example, a Scale in which all the three Chords are Major, is described as ma ma ma, that with three Minor Chords as mi mi mi. Similarly, the other Scales are described as ma ma mi, ma mi ma, mi ma ma and so on. Mr. Ellis, however, does not attempt to classify these Scales or to find out the fine distintictions in their tonality. He does not appear to have discovered the existence of the Major Semitone which comes as a logical consequence of his own theory. Neither does he appear to have observed the misleading similarity existing amongst some of these Scales or their dissimilarity with the other Scales or convertibility of one Scale into another by the change of a single note. It was a rather fortunate circumstance that the writer of the present treatise had no opportunity of looking through the pages of the above work before he discovered the existence of the aforesaid eight Scales in the course of an investigation, continued through several decades, into the structure of the large variety of Scales and Modes used in ancient and modern Indian music, most of which are unknown beyond the borders of India. As a result of that investigation he found out the existence of twelve other Scales, which cannot be explained by the Tri-chordal Theory. It is extremely doubtful whether he would ever have been able to discover the existence or find an explanation of these Scales, if he had started with the notion that the Trichordal Theory only is capable of explaining the structure of all Scales.

as their Heptads cannot be resolved into three consonant Triads like those of the other Scales, the third and the fifth notes of those Heptads being related either as augmented or as diminished fifths and, therefore, badly dissonant to each other. The structure of all the other Scales which are going to be dealt with below in this chapter cannot likewise be explained by the above theory. Scales and Modes constructed in the unknown past for purely melodic purposes cannot obviously be explained by a theory, which is based on ideas of recent growth, quite foreign to those underlying all systems of melodic music.

B. Transilient Scales [Hînaswara Grāma].

(a). Break in the chain of Thirds : While dealing with the principles underlying the structure of Scales, we found that there is a break in the chain of consonant Thirds constituting the Heptad of a Scale. We, therefore, cannot complete the chain to form a cycle of consonances. So, in progressing from consonance to consonance we have to come to a halt at the point of the break. In actual practice, however, we do not generally proceed through consonances only. The very structure of a Scale presupposes that we have to take a consonance and a dissonance alternately ; because, although almost all the thirds in a scale are consonant every second is dissonant. We come to a dissonance at every step as we proceed along the degrees of a Scale ; while, we come to a consonance only alternately. Yet, it is far from our experience that we feel any uneasiness on that account. The intervention of the dissonances rather increases by contrast the pleasant effect of the consonances. The æsthetic sense is satisfied if every dissonance is followed by a consonance. It may, therefore, be laid down as a law of melodic progression that the third note after a particular note must be consonant to it, if the second note is dissonant to it. So long as this law is followed we may progress smoothly in a melodic composition. But, this is not possible if we proceeed from note to note through all the

consecutive degrees of the Scale. For, after proceeding awhile we are compelled to come to a halt at the break of the chain of consonant Thirds referred to above. This may be illustrated in the following manner. Let us take an octave of Primary First Scale from the note Ma and mark the consonant Thirds by means of curved braces in this way :

Ma Pa Da Na Sa¹ Ra¹ Ga¹ Ma¹

(b). The false Third : The first, the third, the fifth and the seventh notes in the above octave are, it will be noticed, the four lower notes of the Heptad of the Scale and the second, the fourth and the sixth notes are the three upper notes of that Heptad. Every two consecutive notes of these two series are, therefore, true Thirds to each other. So, proceeding through the degrees of the Scale from Ma we get a dissonance and a consonance alternately. To state more accurately, from the third note ownwards every note is dissonant to the next preceding note and consonant to the next but one preceding note. Upto Ga¹ we proceed smoothly. The progress is, however, hindered when we come to the first note in its upper octave (Ma¹). This note is, as seen above, a false Third to Ra¹. Their dissonant relationship is indicated by a brace of a kind different from the others.

(c). Hexatonic Scales : It will appear from the above statement that the melodic progression upto the note Ga¹ is all right. The next step to Ma¹ does not produce a good effect. Two courses are left open to ensure a smooth progression. Either we must turn back, *i.e.*, downwards or else, if we want to proceed further, we must omit one of the two notes Ra¹ and Ma¹, which are dissonant to each other. Ma¹ comes more naturally and produces a better effect in ascent, because it is the Perfect Fourth above the Lower Tonic Sa¹ ; while Ra¹ is dissonant to it, though the latter note is the Perfect Fifth

above the Upper Tonic Pa, which being much remoter from it than sa^1 is not so firm in the memory. The effect on the melodic progression by the omission of Ra^1 will be clearly seen below :

Ma *Pa Da Na *Sa^1 × Ga^1 Ma^1

Here the third note after Na is Ga^1, which is the Perfect Fourth above it and, therefore, a much better consonance than Ra^1, which is only a Minor Third above it. The third note after Sa^1 is likewise its Perfect Fourth and so a better consonance than Ga^1. Further, conclusion on Ma^1 produces a much better effect than conclusion on Ga^1 ; because, both of the last two notes are consonant to the Lower Tonic Sa^1. We may also proceed further upwards as smoothly as before, if we want to do so. The omission of the note Ra^1, therefore, gives us a transilient Scale, which is the ascending hexatonic (*shâdava*) form of the Primary First Scale.

Let us now take an octave of the above Scale from Ra, put the notes in a descending order and mark the consonant Thirds by means of curved braces in the following way :—

Ra^1 Sa^1 Na Da Pa Ma Ga Ra

Here in descending from Ra^1 through the degrees of the Scale we come to a dissonance and a consonance alternately just as we did in ascending. The progression is smooth upto Ga, just as in ascent. The next note Ra, being a false Third to Ma, cannot be taken with good effect. We may proceed to that note smoothly if we omit Ma. The result of this omission is shewn below :

Ra^1 *Sa^1 Na Da *Pa × Ga Ra

Here the third notes after Da and Pa are Ga and Ra respectively, which are both Perfect Fourths below them. Further, the last two notes Ga and Ra are both consonant to the Upper Tonic Pa. We, therefore, get a more satisfactory conclusion on Ra than that on Ga. The progression may also be continued. We, thus, get another transilient Scale, which is the descending hexatonic (shādava·) form of the Primary First Scale.

(d). One of the two extreme notes of the Scale Heptad to be omitted: It will be noticed that the notes which are to be omitted in order to have the Hexatonic Scales are the two extreme notes of the Scale Heptad. For the ascending Scale the uppermost note of the Heptad is to be omitted and for the descending Scale the lowest note. Each of the ten Simple Scales described above may thus have an ascending and a descending hexatonic form by omitting the uppermost and the lowest note respectively of its Heptad. We shoud accordingly have ten ascending and ten decending Hexatonic Simple Scales. But, actually we get only eight Scales of each description, inasmuch as the hexatonic forms of the Fifth Scale of each Group are identical with the hexatonic forms of two of the other Scales of that Group. We are now going to explain how this identity of the hexatonic forms of different Scales comes about.

(e). Identity of hexatonic forms: It has been shewn in the last chapter that the Fifth Scale of Group A may be obtained by sharpening by one comma the first note (Sa) of the natural form of the Second Scale of that Group. This note is the lowest note of the Heptad of the latter Scale. In the Sa-Pa-Tonic form of that Scale, as in those of all other Scales, the lowest note of the Heptad is Ma. It is to be sharpened by one comma in order to convert this Scale to the Fifth Scale. This sharpened note Mâ becomes the uppermost note of the Heptad of the latter Scale.

The Heptads of the two Scales are shewn below for comparison :

Second Scale, Group A	Fifth Scale Group A
Ra	Mâ
No	Ra+
Pa*	No
Ga	Pa*
Sa*	Ga
Da	Sa+
Ma	Da

It is evident from these Heptads that the hexatonic form of the Fifth Scale obtained by omitting Mâ, the uppermost note of its Hepted, is identical with the hexatonic form of the Second Scale obtained by omitting Ma, the lowest note of the Heptad of that Scale. Owing to the peculiar structure of the Fifth Scale, this hexatonic form of the Scale is not an ascending Scale as it should have been, but a descending one.

The Fifth Scale may be obtained also by flattening by one comma the third note (Ga) of the natural form of the Third Scale. This note is the uppermost note of the Heptad of the latter Scale. In its Sa-Pa-Tonic form, the corresponding note is Ra. It is to be made Rǎ in order to convert the Scale into the Fifth Scale. This note becomes the lowest note in the Heptad of the latter Scale. The two Heptads are shewn below :—

Third Scale, GROUP A :	Fifth Scale, GROUP A :
Ra	No
No	Pa+
Pa*	Go
Go	Sa*
Sa*	Da
Da	Ma+
Ma	Rǎ

The hexatonic form of the Fifth Scale obtained by omitting Rǎ, the lowest note of the above Heatad, is identical with that obtained by omitting Ra, the uppermost note of the Heptad

of the Third Scale. This transilient Scale is an ascending Scale.

The Fifth Scale of Group B may be obtained, as shewn in the preceding chapter, by sharpening the fourth note Ma of the Second Scale of that Group by a semitone of four nonatones and making it Mî. The Heptads of the two Scales would stand thus :

Second Scale, GROUP B:	Fifth Scale, GROUP B:
Ra	Mî
Na	Ra+
Pa*	Na
Go	Pa*
Sa*	Go
Do	Sa+
Ma	Do

The hexatonic form of the Fifth Scale obtained by omitting Mî, the uppermost note of its Heptad is, thus, identical with the hexatonic form of the Second Scale obtained by omitting Ma, the lowest note of its Heptad. It is a descending Scale.

The Fifth Scale of this Group may be obtained also by flattening by a semitone the second note Ra of the Group and making it Rŏ. The Heptads would stand thus :

Third Scale, GROUP B:	Fifth Scale, GROUP B:
Ra	Na
Na	Pa+
Pa*	Ga
Ga	Sa*
Sa*	Do
Do	Ma+
Ma	Rŏ

The Hexatonic Scale obtained by omitting Rŏ, the lowest note of the Heptad of the Fifth Scale is, therefore, identical

with the Hexatonic Scale obtained by omiting Ra, the highest note of the Heptad of the Third Scale. It is an ascending Scale.

(f). Regrouping of Hexatonic Scales : The hexatonic forms of the two Fifth Scales being identical with those of the Second and Third Scales of their respective Groups, we may leave them out of account. The eight Ascending Hexatonic Scales obtained by omitting the highest notes of the Heptads of the first four Primary and the first four Secondary Scales may be arranged in two new Groups irrespective of their connection with their original Group as follows :

Ascending Hexatonic Scales
[Arohî Shādava Grāma] :

GROUP A
[Ka Varga] :

(1)	*Sa	× Ga	Ma	*Pa	Da	Na	Sa¹
(2)	*Sa	× Ga	Ma	*Pa	Da	No	Sa¹
(3)	*Sa	× Ga	Ma	*Pa	Do	No	Sa¹
(4)	*Sa	× Ga	Ma	*Pa	Do	Na	Sa¹

GROUP B
[Kha Varga] :

(1)	*Sa	× Go	Ma	*Pa	Da	Na	Sa¹
(2)	*Sa	× Go	Ma	*Pa	Da	No	Sa¹
(3)	*Sa	× Go	Ma	*Pa	Do	No	Sa¹
(4)	*Sa	× Go	Ma	*Pa	Do	Na	Sa¹

In the Scales of Group A the Lower Tonic has an open Major Third above it and in those of Group B it has an open Minor Third above it.

The eight Descending Hexatonic Scales obtained by omitting the lowest notes of the Heptads of 'the aforesaid eight

Scales may similarly be arranged in two new Groups, as follows :—

Descending Hexatonic Scales
[Avarohî Shādava Grāma] :

GROUP A
[Ka Varga] :

(1)	*Sa	Ra	Ga	×	*Pa	Da	Na	Sa¹
(2)	*Sa	Ra	Ga	×	*Pa	Da	No	Sa¹
(3)	*Sa	Ra	Ga	×	*Pa	Do	No	Sa¹
(4)	*Sa	Ra	Ga	×	*Pa	Do	Na	Sa¹

GROUP B
[Kha Varga]:

(1)	*Sa	Ra	Go	×	*Pa	Da	Na	Sa¹
(2)	*Sa	Ra	Go	×	*Pa	Da	No	Sa¹
(3)	*Sa	Ra	Go	×	*Pa	Do	No	Sa¹
(4)	*Sa	Ra	Go	×	*Pa	Do	Na	Sa¹

(g). Aesthetic importance of omission : the Open Third : Omission of a note in a Hexatonic Scale, though made out of necessity for the purpose of bringing about continuity of consonant relationships amongst the notes of a Scale which is disturbed by the break in the chain of Thirds, has a special æsthetic importance inasmuch as it creates an open Third either above or below one of the Tonics. The interval of Third, which is of the greatest importance as a consonant relationship, both in melodic and harmonic music, is brought to prominence by being thus kept open in these transilient Scales.

In the Ascending Hexatonic Scales the open Third is above the Lower Tonic and in the Descending Hexatonic Scales it is below the Upper Tonic. In Group A of the Ascending Hexatonic Scales and in Group B of the Descending

Hexatonic Scales the open Thirds are Major. In Group B of the Ascending Hexatonic Scales and in Group A of the Descending Hexatonic Scales the open Thirds are Minor.

(h). Pentatonic Scales : Transilient Scales of another kind are found in constant use, which contain only five notes. These are called Pentatonic Scales (Auduva Grāma). They are obtained by omitting two notes of Simple Scales. One of the two notes omitted in order to have the pentatónic form of a Scale is the note omitted for its hexatonic form. This note is situated at one end of the Scale Heptad ; the other note omitted for the pentatonic form is the second note from the other end. It has been pointed out above that omission of a note in a Hexatonic Scale is made out of necessity on account of an inherent defect in the structure of Scales, viz., the break in the chain of consonant relationships. There is no necessity for the omission of the second note in the pentatonic form of the Scale. Yet, Pentatonic Scales appear to be more popular than Hexatonic Scales. This must be due to the special features brought about by the omission of the second note. In the first place, both the Tonics are, by this means, provided with open Thirds in the same direction. Secondly, the number of consonances to the two Tonics is equalized, thus bringing them to equality of position in the Scale. Thirdly, the Scale is provided with two transilient Perfect Tetrachords, both either ascending or descending and connected by a common Tonic, thus creating a sort of parallelism between two parts of the Scale. In the ascending Scale the connecting note is the Lower Tonic and in the descending Scale the Upper Tonic. This may be illustrated in the following way from the two pentatonic forms of the Primary First Scale :—

Ascending : $\overset{*}{\text{Pa}}_1 \times \text{Na}_1 \overset{*}{\text{Sa}} \times \text{Ga Ma}$

Descending : $\overset{*}{\text{Sa}}^1 \times \text{Da} \overset{*}{\text{Pa}} \times \text{Ga Ra}$

It will be observed that Ma, the Upper Tonic of the upper Tetrachord of the ascending Scale, and Ra, the Lower Tonic of the lower Tetrachord of the descending Scale, are not Tonics of the composite Scale. These Tetrachords may only be considered as parts of the constituent Perfect Pentachords of the Scales. They cannot, therefore, be used as the basis of the principal phrases of a melody. In fact, a hexatonic form of a Scale has only a transilient Perfect Pentachord which can be so used. By omission of the other note the Scale is provided with a transilient Perfect Tetrachord, which has for its own Tonics those of the composite Scale, and can be used for the principal phrases of a melody. The *constituent transilient Perfect Tetrachord* is, therefore, the fourth and the most important feature of a Pentatonic Scale.

(i). **Re-grouping of Pentatonic Scales :** The note omitted for having a Hexatonic Scale, being at one extremity of the Scale Heptad, is a fixed note. The other note of the Scale omitted in order to have the pentatonic form, being the second note from the other extremity, is an alterable note. This note having two forms, one natural and the other flat, the same pentatonic form can be obtained from two different Scales. Thus, for example, omission of the notes Ra and Da from the Primary First Scale and omission of the notes Ra and Do from the Secondary Third Scale would give the same Pentatonic Scale : *Sa × Ga Ma *Pa × Na Sa¹. So, we would have altogether eight Pentatonic Scales instead of sixteen. These may be arranged in four Groups :

Ascending Pentatonic Scales
[Arohî Auduva Grāma] :

GROUP A

[Ka Varga] :

(1) *Sa × Ga Ma *Pa × Na Sa¹

(2) *Sa × Ga Ma *Pa × No Sa¹

GROUP B

[Kha Varga] :

(1)	$\overset{*}{S}$	×	Go	Ma	$\overset{*}{Pa}$	×	Na	Sa^1
(2)	$\overset{*}{Sa}$	×	Go	Ma	$\overset{*}{Pa}$	×	No	Sa^1

Descending Pentatonic Scales

[Avarohî Auduva Grāma] :

GROUP A

[Ka Varga] :

(1)	$\overset{*}{Sa}$	Pa	Ga	×	$\overset{*}{Pa}$	Da	×	Sa^1
(2)	$\overset{*}{Sa}$	Ra	Ga	×	$\overset{*}{Pa}$	Do	×	Sa^1

GROUP B

[Kha Varga] :

(1)	$\overset{*}{Sa}$	Ra	Go	×	$\overset{*}{Pa}$	Da	×	Sa^1
(2)	$\overset{*}{Sa}$	Ra	Go	×	$\overset{*}{Pa}$	Do	×	Sa^1

(j). Oblique Motion
(Vakra Gati) :

(i). Apparent fulness of Scales : Oblique use of omitted notes : According to ancient custom Indian melodies are divided into three classes : *Sampurna* (full), *Shādava* (hexatonic) and *Auduva* (pentatonic). It has been shown above that the scientific reason for the omission of a note is the necessity of bringing about continuity of consonant relationships of the notes of the Scale. The note at either extremity of the Scale Heptad has to be excluded for this purpose. In practical use, therefore, every Scale must be Hexatonic. The only exception is the octave of the Middle Tonic or the Mediant, (*i.e.*, to say, the Third between the Lower and the Upper Tonics) as the case may be. In this octave the false Third is avoided by placing one of the notes separated by this interval beyond the octave. All the other six octaves of a

Scale must be used in the hexatonic form. In actual practice, however, these octaves often appear to be full. This apparent fulness is due to inclusion of the omitted note by what may be called 'oblique motion' (*Vakra Gati*). In this motion the omitted note is taken in such a way as to avoid direct connection with the note to which it is a false Third. To show this process, let us take the Da octave of Primary First Scale :

$$Da_1 \quad Na_1 \quad Sa \quad \overbrace{Ra \quad Ga \quad Ma} \quad Pa \quad Da$$

(ii). **Oblique motion in ascent and dessent :** Now in proceeding upwards from Da_1 we go smoothly upto Ga, the alternate notes being true Thirds. Further up we cannot proceed, for at the next step we come to Ma, which makes a false Third with Ra, as shewn by the brace. So, if we want to proceed to Ma, we must turn back from Ra, return to Sa and then proceed through Ga to Ma, skipping over Ra in ascent. Here we cannot proceed straight up to Ma through Ra. The motion to and from Ra, as shewn above, is 'oblique'. The interval between Sa and Ga must be always kept open if we want to take Ma. Oblique motion in ascent may be shewn thus :—

Oblique motion in ascent $\left\{ \right.$ $Na_1 \quad \underline{Sa} \quad \underline{Ra} \quad \underline{Sa} \quad \times \quad Ga \quad Ma$

The three underlined notes illustrate the oblique motion of Ra. The open Third between Sa and Ga is shewn by a brace overhead. Oblique motion of the omitted note is made in ascent usually when that note is the lower note of the false Third, and in descent usually when it is the upper note. Oblique motion in the opposite direction is also possible ; but, it is difficult and rare. The reason is that the unomitted note of the false Third being taken first the other note must be omitted if we want to proceed in the same direction. So, if we want to take the omitted note by oblique motion we must proceed further to some note to which it is consonant, so that we may return to it in relation to that note. In the above-mentioned Hexatonic Scale, in which the omitted note (Ra) is the lower note of

the false Third, its oblique motion in descent will be in the following manner :—

Oblique motion in descent } Da Pa Ma Ga × Sa $\underline{Na_1\ (Sa)\ Ra\ Sa}$
$\underline{Na_1}$

Notes underlined illustrate the oblique motion of Ra in descent. The open Third is marked by a brace. Here Ma, being taken first, Ra must be omitted in descent. Its oblique motion is only possible if we proceed upto Na_1, to which it is consonant.

Similar oblique motion, but in the opposite direction, can be made in those transilient Scales in which the omitted note is the upper note of the false Third.

C. Chromatic Scles

[Sālanga Grāma].

(a). "Chromatic Genus" of ancient Greece: Dravidian origin : The Scales we are now going to deal with stand apart from those hitherto dealt with in regard to their character and the principles on which they are constructed. They have been named "Chromatic Scales" after the ancient Greek "Chromatic Genus" of tetrachords, from which Scales of a similar character were constructed. The Greeks abandoned these Scales long ago in favour of other Scales and, so far as we are aware, India is the only land where they are to be found at present. There is, however, no indication of them in the ancient system of Indian music promulgated by Bharat and others. They must, therefore, be considered either as later developments or importation from exotic sources, presumably Dravidian. The word "Sālanga" has been taken as the Sanskrit equivalent for the word "Chromatic", which is used in ancient Sanskrit works with regard to certain melodic types (Rāgas) of unknown character, the two words being very similar in import. The Greek Tetrachord of the Chromatic Genus may be represented as follows :—

Greek Tetrachord of the Chromatic Genus } *Pa Do Da *Sa^1

(b). **Double Third : New law of melodic progression :** It is a descending Scale, in which the Upper Tonic has both a Minor and a Major Third below it. The double Third to a Tonic is the characteristic feature of a Chromatic Tetrachord. It is a novel feature which is absent from all Scales hitherto dealt with. We have seen above that the three notes intervening as Thirds between the consecutive fixed notes of a Scale Heptad are the most important notes in music, inasmuch as, being variable in character, they are the only three notes which are capable of introducing variety in music, while the four fixed notes connected in a chain of Fifths are common to all Scales. Appreciation of the beauty and importance of the Thirds reached its high water-mark when a Tonic of a Scale was provided with both the Thirds one after another with rare ingenuity. The Chromatic Scales may, therefore, be rightly considered as the last triumph of the musical faculty. In them is further discovered a remarkable exception to the melodic law of thirds referred to above. For, we find that the musical feeling is not outraged when we proceed from a particular note of these Scales to its Minor Third, Major Third and Fourth one after another, though the fourth note, which is the third note after the second note, is not consonant to the latter. Here, then, we get another law of melodic progression, viz., three notes dissonant to each other may be used together, if they follow a note which is consonant to each of them.

(c). **Chromatic Tetrachords and Pentachords :** Though the Greeks used only descending Chromatic Tetrachords, we may as well use ascending Chromatic Tetrachords. An example of such a Tetrachord is given below :—

Ascending Chromatic Tetrachord	* Sa	Go	Ga	* Ma

It will be observed that in both the above Chromatic Tetrachords there is an open Minor Third below or above the

starting Tonic. This is, as seen above, the characteristic feature of a transilient Simple Tetrachord. It may, therefore, be inferred that a Chromatic Tetrachord is the development of a transilient Simple Tetrachord. The former may be considered as the combination of two transilient Simple Tetrachords. Thus, the above-mentioned ascending Chromatic Tetrachord would result from uniting together the following two transilient Simple Tetrachords :—

(1)	Ascending Simple Tetrachord with open Minor Third	*Sa	×	Go	*Ma
(2)	Ascending Simple Tetrachord with open Major Third	*Sa	×	Ga	*Ma

The combined Tetrachord, thus, gets its full complement of four notes. The descending Chromatic Tetrachord is likewise the result of the union of two transilient descending Simple Tetrachords.

If now a Perfect Fifth above the Lower Tonic is added to ascending Chromatic Tetrachord, we get an ascending Chromatic Pentachord. Similarly, by adding a Perfect Fifth below the Upper Tonic to the descending Chromatic Tetrachord we get a descending Chromatic Pentachord.

Thus :—Ascending Chromatic Pentachord	*Sa	Go	Ga	Ma	*Pa
Descending Chromatic Pentachord	*Pa	Ga	Go	Ra	*Sa

(d). Chromatic Scale, amalgamation of two Transilient Scales : As according to a principle of structure of Scales a Perfect Tetrachord annexed to a Perfect Pentachord gives a complete Scale, we may get different complete Scales from the above Chromatic Pentachords by annexing to them different Tetrachords. Let us add the Simple Tetrachord *Pa Da Na *Sa[1]

to the above ascending Chromatic Pentachord. The resulting Scale would be :—

*Sa Go Ga Ma *Pa Da Na *Sa[1]

In this Scale we find the amalgamation of the two Ascending Hexatonic Scales, Group A, No. 1 and Group B, No. 1. We may, similarly, get three other Scales by amalgamating Scales Nos. 2, 3, 4 of Group A with Scales Nos. 2, 3, 4 respectively of Group B. We, thus, get four Ascending Chromatic Scales from the eight Ascending Hexatonic Scales. By a similar process of amalgamation we would get four Descending Chromatic Scales from the eight Descending Hexatonic Scales. We would, thus, get altogether eight Chromatic Scales from the sixteen Hexatonic Scales, four of which are ascending and four descending.

If instead of a Simple Tetrachord the ascending Chromatic Tetrachord given above be added to the ascending Chromatic Pentachord, we would get the fifth Ascending Chromatic Scale. This scale is the result of amalgamation of Ascending Pentatonic Scale No. 1 of Group A with No. 2 of Group B or No. 2 of Group A with No. 1 of Group B.

Again, by annexing the descending Chromatic Tetrachord (used by the Greeks) to the descending Chromatic Pentachord we would get the fifth Descending Chromatic Scale, which is the result of amalgamation of Descending Pentatonic Scale No. 1 of Group A with No. 2 of Group B or No. 2 of Group A with No. 1 of Group B. Thus, we get only two Chromatic Scales, from the eight Pentatonic Scales, one ascending and the other descending.

(e). Ten Chromatic Scales : Groups A and B : Like the Simple Scales the Chromatic Scales are, therefore, also ten in number, of which eight are of hexatonic and two of pentatonic origin. These may be arranged in two Groups, one of ascending Scales and the other of descending Scales. The first four Scales of each Group would be of hexatonic origin and the fifth of pentatonic origin.

They are given below :—

Chromatic Scales [Sālanga Grāma],

GROUP A

[Ka Varga]

Ascending [Ārohî] :

First :	*Sa	Go	Ga	Ma	*Pa	Da	Na	Sa^1
Second :	*Sa	Go	Ga	Ma	*Pa	Da	No	Sa^1
Third :	*Sa	Go	Ga	Ma	*Pa	Do	No	Sa^1
Fourth :	*Sa	Go	Ga	Ma	*Pa	Do	Na	Sa^1
Fifth :	*Sa	Go	Ga	Ma	*Pa	No	Na	Sa^1

Chromatic Scales [Sālanga Grāma],

GROUP B

[Kha Varga] :

Descending [Avarohî] :

First :	*Sa	Ra	Go	Ga	*Pa	Da	Na	Sa^1
Second :	*Sa	Ra	Go	Ga	*Pa	Da	No	Sa^1
Third :	*Sa	Ra	Go	Ga	*Pa	Do	No	Sa^1
Fourth :	*Sa	Ra	Go	Ga	*Pa	Do	Na	Sa^1
Fifth :	*Sa	Ra	Go	Ga	*Pa	Do	Da	Sa^1

It will be easy to remember the Group and the number of these Scales if the symmetrical order in which they are arranged is kept in mind. First, in each Group the Chromatic Pentachord is common to all the Scales of that Group ; in Group A the note Ra (the upper extremity of the original Scale Heptad) is absent and in Group B the note Ma (the lower extremity of the original Scale Heptad) is absent ; the Third between the Lower and the Upper Tonics is doubled in all. Secondly, in the first four Scales of each Group the sixth and seventh notes are

placed in the order (1) Da Na, (2) Da No, (3) Do No, (4) Do Na. There is no double Third in the Tetrachords of these Scales. Thirdly, in the Tetrachord of the Fifth Scale of Group A there is no Da or Do and in the Fifth Scale of the other Group there is no Na or No ; in the former there is double Third above Pa and in the latter there is double Third below Sa[1].

(f). **Characteristic parts :** As regards the structure of these Scales it should be pointed out that the characteristic part of the eight Chromatic Scales of hexatonic origin is the Pentachord like that of the sixteen Hexatonic Scales and that the characteristic part of the two Chromatic Scales of pentatonic origin is the Tetrachord like that of the eight Pentatonic Scales. The principal phrase of a melody composed in either a Hexatonic Scale or a Chromatic Scale of hexatonic origin should, therefore, be confined to the Pentachord ; and that of a melody composed in a Pentatonic Scale or a Chromatic Scale of pentatonic origin should likewise be confined to the Tetrachord or a Hexachord including the Tetrachord. As the Pentachord is of much later origin than the Tetrachord and its use much more difficult than that of the latter, the two Scales in which the Chromatic Tetrachord is predominant appear to be more popular, than others.

(g). **Converse Relationship :** The First Scale of Group A has for its converse the Third Scale of Group B, and the First Scale of Group B has for its converse the Third Scale of Group A. The Second, the Fourth and the Fifth Scales of one Group are converse to the Scales of the same numbers of the other Group. This will be evident from the converse relationship between pairs of the constituent Pentachords and Tetrachords shewn below by means of braces :—

Chromatic Pentachords :

Group A : *Sa Go Ga Ma *Pa
14 3 5 9

Group B : *Pa Ga Go Ra *Sa
14 3 5 9

Simple Tetrachords :

Group A or B	No. 1 :	Pa	Da	Na	Sa¹	
			8	9	5	
Group B or A	No. 3 :	*Sa¹	No	Do	*Pa	
			8	9	5	
Group A	No. 2 :	*Pa	Da	No	*Sa¹	
			8	6	8	
Group B	No. 2 :	*Sa¹	No	Da	*Pa	
			8	6	8	
Group A	No. 4 :	Pa	Do	Na	Sa¹	
			5	12	5	
Group B	No. 4 :	*Sa¹	Na	Do	*Pa	
			5	12	5	

Chromatic Tetrachords :

Group A,	No. 5 :	*Pa	No	Na	*Sa¹	
			14	3	5	
Group B,	No. 5 :	*Sa¹	Da	Do	*Pa	
			14	3	5	

Tetrachords Nos. 2 and 4 of each Group are their own converse and, therefore, converseless. It is evident that if the component parts of one Scale are converse to the corresponding component parts of another, then the former composite Scale is converse to the latter. For example, if the Tetrachord No. 1 of Group A, which is a Simple Tetrachord, be annexed to the common Pentachord of that Group, which is an ascending Chromatic Pentachord, the composite Scale would be Scale No. 1 of Group A ; and if the Tetrachord No. 3 of Group B, also a Simple Tetrachord, be added to the common Pentachord of that Group, which is a descending Chromatic Pentachord, the composite Scale would be Scale No. 3 of Group B. The corresponding component parts of these two Scales being converse to each other the Scales are also themselves converse to each other.

(h). Trichordal Unitary Scales: In addition to the constituent Tetrachordal and Pentachordal Unitary Scales mentioned above Chromatic Scales include other unique Unitary Scales. These are Trichordal in character and are ascending in the Ascending Chromatic Scales (Group A) and descending in the Descending Chromatic Scales (Group B). They are included in the characteristic Chromatic Pentachords of these Scales and have at their extremities either the Lower or the the Upper Tonic and the Mediant. The ascending and the descending Chromatic Pentachords are given below in order to show the positions of the Trichords in them.

Ascending Chromatic Pentachord	*Sa Go Ga Ma *Pa
Descending Chromatic Pentachord	*Sa Ra Go Ga *Pa

The 'Trichords' are marked by braces underneath. For the ascending Trichord Ga is to be taken as the Mediant and placed at its upper extremity and for the descending Trichord Go is to be taken as the Mediant and placed at its lower extremity.

As these Trichords include only a Major and a Minor Third, they are almost invariably extended to the Fourth or the Fifth above the Lower Tonic or below the Upper Tonic, as the case may be ; and sometimes also to the Fourth below or above the Mediant. Thus :—

In Ascent : *Sa (Na$_1$ Sa) Go (Ga Ma Pa Ma) *Ga

In Descent : *Pa (Do Pa) Ga (Go Ra Sa Ra) *Ga

In every case the phrase must start with the Lower or the Upper Tonic and conclude with the Mediant.

D. Conversion of Secondary and Chromatic Scales.

In the last preceding chapter the Primary Scales have been so arranged that every Scale can be converted to the next following

or the next preceding Scale by flattening or by sharpening a single note by a Small Semitone. The same arrangement has been followed also in the case of Secondary and Chromatic Scales. According to this arrangement the relationship of convertibility exists amongst the first four Scales of each of the four Groups. Any Scale of the Primary Group is further capable of being converted to two Scales of the Secondary Group and *vice versa*. For example, Primary First Scale can be converted to either Secondary First or Secondary Third Scale by flattening either Ga or Da. Similarly, any Scale of the Secondary Group will be found to be convertible to two Scales of the Primary group.

The Scales of each Group of Chromatic Scales are similarly convertible amongst themselves. But these conversions seem to be rarely used.

E. Recapitulation.

We have now exhausted the list of Scales which can be taken as the basis for melodic composition. It must not, however, be supposed that every one of these Scales is in actual use in modern music or that it was ever used in the past. The list, neverthless, claims to cover the whole field of melodic music, past, present and future, which is capable of rational treatment. We have dealt with altogether twenty Scales excluding the transilient ones, which are only mutilated forms of the original Scales. These Scales have been divided into four Groups of five each, two of which have been called Simple Scales and the other two Chromatic Scales. Group A of Simple Scales has also ben called Primary Scales and Group B Secondary Scales. The Primary Scales are distinguished by the especial feature that the notes of one Scale differ from those of the other Scales of that Group to the extent of only one nonatone (which represents a comma) and are, therefore, apt to be confused with each other. This feature has been called "Similarity". The First and the Fourth of the Secondary Scales also possess this feature and require some

circumspection to distinguish them from each other. The Fifth Scales of the two Groups of Simple Scales are of purely tetrachordal chracter and have no Perfect Pentachords in them. The first four Scales of both the Groups of Chromatic Scales are of hexatonic origin and are each composed of a Chromatic Pentachord and a Simple Tetrachord. The Fifth Scales of these Groups are each composed of a Chromatic Tetrachord and a Chromatic Pentachord. Those Simple Scales which have a Major Third or an open Minor Third above one of their Tonics can be used as ascending Scales; and those Simple Scales which have a Major Third or an open Minor Third below one of their Tonics can be used as descending Scales. The Chromatic Scales of Group A are all distinctly ascending and those of Group B distinctly descending in character. Except the two Simple Fifth Scales, which are converseless, every Scale has another Scale which is converse to it. The existence of one of them proves the existence of the other.

F. Sa-Pa-Tonic Forms of the Twenty Scales.

Sa-Pa-Tonic Forms of all the twenty Scales together with the names of their converse Scales are given below for comprehensive and comparative view :—

(a). Simple Scales [Sarala Grāma].

(i). A Group [Ka Varga] :

Primary [Mukhya] :

									Converse
First Scale :	*Sa	Ra	Ga	Ma	*Pa	Da	Na	Sa¹-	Prim. IV.
Second Scale :	*Sa	Ra	Ga	Ma	*Pa	Da	No	Sa¹-	Prim. III.
Third Scale :	*Sa	Ra	Go	Ma	*Pa	Da	No	Sa¹-	Prim. II.
Fourth Scale :	*Sa	Ra	Go	Ma	*Pa	Do	No	Sa¹-	Prim. I.
Fifth Scale :	*Sa	Rǎ	Go	+Ma	+Pa	Da	No	*Sa¹-	×

(ii). B Group [Kha Varga]: Secondary [Gauna]:

									Converse
First Scale :	*Sa	Ra	Go	Ma	*Pa	Da	Na	Sa¹-	Sec. IV.
Second Scale :	*Sa	Ra	Go	Ma	*Pa	Do	Na	Sa¹-	Sec. III.
Third Scale :	*Sa	Ra	Ga	Ma	*Pa	Do	Na	Sa¹-	Sec. II.
Fourth Scale :	*Sa	Ra	Ga	Ma	*Pa	Do	No	Sa¹-	Sec. I.
Fifth scale :	*Sa	Rŏ	Ga	+Ma	+Pa	Do	Na	*Sa¹-	×

(b). Chromatic Scales [Sālanga Grāma].

(i). A Group [Kha Varga]:

									Converse
First Scale :	*Sa	Go	Ga	Ma	*Pa	Da	Na	Sa¹-	Chrom. B, III.
Second Scale :	*Sa	Go	Ga	Ma	*Pa	Da	No	Sa¹-	Chrom. B. II.
Third Scale :	*Sa	Go	Ga	Ma	*Pa	Do	No	Sa¹-	Chrom. B, I.
Fourth Scale :	*Sa	Go	Ga	Ma	*Pa	Do	Na	Sa¹-	Chrom. B, IV.
Fifth Scale :	*Sa	Go	Ga	Ma	*Pa	No	Na	Sa¹-	Chrom. B, V.

(ii). B Group [Kha Varga]:

									Converse
First Scale :	*Sa	Ra	Go	Ga	*Pa	Da	Na	Sa¹-	Chrom. A, III.
Second Scale :	*Sa	Ra	Go	Ga	*Pa	Da	No	Sa¹-	Chrom. A, II.
Third Scale :	*Sa	Ra	Go	Ga	*Pa	Do	No	Sa¹-	Chrom. A, I.
Fourth Scale :	*Sa	Ra	Go	Ga	*Pa	Do	Na	Sa¹-	Chrom. A, IV.
Fifth Scale :	*Sa	Ra	Go	Ga	*Pa	Do	Da	Sa¹-	Chrom. A, V.

CHAPTER VII.

Mode

[Mūrchhanā].

A. Scale and Mode.

A Scale, as we have seen above, consists of only seven notes. The note which is higher or lower than a particular note by one or more octaves is considered to be indentical with it. So, if we omit the lowest of the seven notes of a Scale and substitute for it the note which is higher by an octave, we get a different form of the Scale with the same seven notes. The Primary First Scale would by this procedure assume the form :

Ra Ga Ma Pa Da Na Sa^1

Similarly, if we omit the two lowest notes of that Scale and substitute for them the notes which are higher by an octave, we get the form :

Ga Ma Pa Da Na Sa^1 Ra^1

In this way we may have seven different forms of the Primary First Scale by starting from each of its seven notes by turn. Every Scale may, similarly, have seven different forms. These forms are but different species of heptachord of the same Scale. By adding to each the eighth of the initial note we get seven different species of octave of the Scale. As the two Tonics of a Scale are its most prominent and important notes, it is natural to take the octave beginning with one of the Tonics as the original form of the Scale. In modern times it is the usual practice to begin a Scale from its Lower Tonic. We have accordingly begun all our Scales with that Tonic. But, in ancient India and ancient Greece the original form of a Scale began with the Upper Tonic. In medieval European music the form of a Scale starting with its Lower Tonic was characterized as "authentic" and that beginning with the Upper Tonic as "plagal". To start a Scale from one of its Tonics, is

however, only a matter of convenience and not of any scientific significance or necessity. It would, indeed, be easier to get the correct relatlve positions of the notes of a Scale if we could connect them all to a single note placed at an extremity of the Scale than if we had to connect them to a note placed in an intermediate position, as in the former case the notes would all be on the same side of the central note to which they are connected, while in the latter case they would be distributed on opposite sides of it[1]. But it is not possible to connect all the

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1. Owing to this supposed convenience it has been an almost universal custom to start a Scale from one of its Tonics. This practice appears to have given rise to the notion that the initial note must be always regarded as the most important note of a Scale. This idea has led some musicians and theorists to treat the initial note as the most important note even in a Scale in which it is not identical with one of its Tonics. Gopeshwar Banerjee, a renowned musician and author of the valuable work "Sangîta Chandrikā", in his solicitude to give the initial note (Sa) the highest position of importance in all Scales, lands himself on the absurd position that it is never a Vādî or a Samvādî, though as a matter of fact, these being the two central notes (Amsas) of a Scale are its most important notes. Consequently, in the Rāgas given by him, we do not find a single Rāga, which has Sa for either its Vādî or its Samvādî.

Krishna Dhan Banerjee, an older writer on music, also appears to labour under a similar misconception. With an imperfect apprehension of the scientific theory of consonance, this writer audaciously threw overboard in his "*Gîtā-Sutra-Sāra* the whole existing thoery about Vādî and Samvādî, and suggested a novel theory of his own. Taking the initial Sa as the most important note in the Scale on the ground that the *Tānpurā* is invariably tuned to that note, he proposes for the Vādî and the Samāvadî either the Major Third or the Fourth or the Fifth of the initial. Neither the initial itself nor the other notes, which are consonant to it; viz., the Minor Third, the Major Sixth and the Minor Sixth, are considered by this writer as fit to be treated as Vādî or Samvādî. Furthermore, he leaves the matter there, and does not mention the Vādis and Samvādis in his list of Rāgas. This shows that he did not in reality believe in his own theory.

Vishnu Nārāyan Bhatkhande the great author of the Marathi work "Hindusthāni Sangîta Paddhati" (in five volumes)

notes of a Scale to a single centre, the Scale being, as we have shown above, bicentric in character. Neither is it possible to place one of its centres at one extremity and the other at the opposite extremity, because the note at one extremity is identical with that at the other, being its octave. The two centres of a Scale must always be placed either fifth or fourth from each other. We have seen above that the two centres of a composite Scale are identical with those of the Unitary Scales (the Pentachord and the Tetrachord) of which it is composed and that these are always placed at the extremities of these Scales. The component Unitary Scales and the relative positions of their centres are undisturbed in the authentic and the plagal forms of a Scale. Owing to this feature these forms have a peculiar æsthetic significance of their own. If we begin the Scale from any note other than the Tonics, one of the Unitary Scales is broken up. But, as one of the Unitary Scales is always left in tact, these forms are quite useful for melodic purposes. In fact, all these seven forms of a Scale have been used in India and Europe since most ancient times. In modern music they are frequently used, though in most cases unconsciously. In ancient India these forms or octaves were called *Mūrchhanās*, as distinguished from *Grāmas*, which meant Scales, each Grāma having seven Murchhanās belonging to it. In ancient Greece they were known as *Πarmoniai*. Some modern European writers have designated them "Species of the Octave". While others have called them "Modes". Although the term "Mode" has sometimes been used as a synonym for "Scale" (Grāma), it has been used in this treatise exclusively as signifying a *Mūrchhanā*.

and the Sanskrit work "Srimallakshya-sangitam" (under the pseudonym "Vishnu Sharmā") and Kāshinātha Apātulasî, a less known but a most reliable theorist and author of "Rāga Kalpadrumānkura"; who did not labour under the aforesaid misconceptions, mentioned many Rāgas, in which Sa is either the Vādi or the Samvādî. For example : Kedārā, Bāgeshri and Ādānā.

B. Tonality and Modality.

(a). The seven Modes of the Scale of Origin : Taking the Mode of the Lower Tonic as the original form of the Scale, we have got to examine how far the other Modes differ from it and also from each other, and what new materials for melodic composition are provided by them. For this purpose, let us arrange the Modes of the Scale of Origin in a serial order, placing the Mode of the Lower Tonic at the head of the series.

Thus :—

Mode No.	1 -	*Sa	Ra	Ga	Ma	*Pa	Da	Na
„ „	2 -	Ra	Ga	Ma	*Pa	Da	Na	*Sa¹
„ „	3 -	Ga	Ma	*Pa	Da	Na	*Sa¹	Ra¹
„ „	4 -	Ma	*Pa	Da	Na	*Sa¹	Ra¹	Ga¹
„ „	5 -	*Pa	Da	Na	*Sa¹	Ra¹	Ga¹	Ma¹
„ „	6 -	Da	Na	*Sa¹	Ra¹	Ga¹	Ma¹	*Pa¹
„ „	7 -	Na	*Sa¹	Ra¹	Ga¹	Ma¹	*Pa¹	Da¹

(b). Positions of the Tonics in relation to the Mode-intial : A comparative analysis of these Modes brings out certain marked differences amongst them. First, the positions of the Tonics in every one of these Modes are different from those of every other. Thus, the Lower Tonic of the First Mode is the note at its lower extreme end, i.e., the first note, that of the Second Mode is the seventh note, that of the Third Mode is the sixth note, and so on. Again, the Upper Tonic of the First Mode is the fifth note, that of the Second Mode is the fourth note, that of Third Mode is the third note and so on. This shows that the positions of the Tonics with reference to the initial or starting note are different in each of these Modes. As some amount of prominence must be given to the Tonics in a musical composition it is easy to see that the character of a melody will depend to a large extent on their positions in the Mode in which the melody is composed. This truth

was known both to ancient Indian and ancient Greek musicians. The "Rasa", i.e., the æsthetic or rather the emotional character of a melody used in the ancient dramatic art of India used to rest on the position of the *Amsa* of the *Jāti* in which the melody was sung. Similar conceptions regarding the æsthetic character of melodies are also to be found amongst the ancient Greeks, who regarded the ethical nature of a melody to be dependant on the position of the *Mese* in the Mode. That the position of a note in the Scale gives a particular emotional colour to it is also admitted by the modern Tonic-Sol-faists of Europe, who have evolved an ingenious system of training the ear of a musical student with the help of this aspect of the *notes*.[2] Taking these conceptions to be correct, being based, as they are, on actual human

2. In the the 30th chapter of the Bhāratiya Nātya Shāstra the different Rasas associated with the Jātis are mentioned. Those Jātis, which have either Shadja or Rishabha as their *Amsa*, are suitable for *Veera*, *Raudra* and *Adbhuta Rasas* (feelings of heroism, anger and wonder); those which have Gāndhāra or Nishāda for their *Amsa* are appropriate for *Karuna Rasa* (pathos); those which have Madhyama or Panchama as their Amsa are capable of producing *Shringāra* and *Hāsya Rasas* (feelings related with amour and laughter); and those which have Dhaivata for their *Amsa* are suitable for *Vibhatsa* and *Bhayānaka Rasas* (hatred and fear).

In ancient Greece high-pitched music, i.e. to say, melodies composed in Modes, whereof the *Mese* (note of the middle string) corresponding to Amsa or Tonic, was placed in the upper part, were "felt to be passionate and expressive of violent grief", and low-pitched music, i.e. to say, music composed in modes having the Mese placed in the lower part, was felt "to be sentimental and licentious". The Tonic-Sol-faists of modern England hold similar views regarding the influence of different notes in the scale on the sentiment intended to be expressed by a particular piece of musical composition. The following passage from John Curwen's "Standard Course" (Ed. 1901) may be quoted here in this connection :—

> "As every tune has its own proper character (bold, spirited, cheerful, didactic, solemn etc.), it is natural that the Tonic-Solfaist should give clearest force to those tones of the scale which correspond best with the general sentiment of the piece—are "congenial with that sentiment". (Sixth Edition, p. 247)

experience, we may assume that the æsthetic character of melodies would depend to a large extent on the positions of the two central notes in the Modes.

(c). **Positions of the Tonics in relation to each other :** Secondly, the positions of the Tonics are different in each Mode, not only with reference to the initial note, but also with reference to each other. In the first and the fifth Modes they are placed fifth and also fourth from each other. Of the other Modes, the second, the third and the fourth have their Tonics placed fourth from each other ; and the sixth and the seventh Modes have them placed fifth from each other. The Modes are, therefore, divided into two classes, in one of which the Tonics are placed fifth from each other and in the other they are placed fourth from each other. The first and the fifth Modes are common to both these classes. Now, as the main phrases of a typical melody must bring the two Tonics into prominence, which is usually done by placing one of them at the beginning and the other at the end of the phrase, it is evident that the relative positions of the Tonics in those phrases will largely determine their character.

(d). **Positions of other notes in relation to the Tonics :** Thirdly, there is a change in the positions of one or more of

Whether a tone is "congenial" to a particular tune is to be determined by the mental effect which the tone is capable of producing. The first note of the scale called Do (=Sa) is described as *strong* or *firm*, the second note Ray (=Ra) is *rousing* or *hopeful*, the third note Me (=Ga) is *steady* or *calm*, the fourth note Fah (=Ma) is *desolate* or *awe-inspiring*, the fifth note Soh (=Pa) is *grand* or *bright*, the sixth note Lah (=Da) is *sad* or *weeping*, and the seventh note Te (=Na) is *piercing* or *sensitive* (Ibid p. 31).

The Tonic-Sol-faist is advised to give *clearest force* to the notes congenial to the tune. The fact, however, seems to have been ignored that such force can be given only to the Tonics, to be used either as the "dominant" or as the "final". The intended difference in the character of tunes can be had in the modal system alone, as according to this system the dominant and the final can be made to hold different positions by changing the mode-octave.

the notes of the Scale in relation to the Tonics in each of these Modes. For example, whereas, in the first Mode the notes of the Scale are situated above the Lower Tonic, in the second Mode they are all placed below that Tonic and must, therefore, be always treated as such. Thus, Ga, which is to be treated as a Major Third above Sa in the first Mode, cannot be so treated in the second Mode, in which it must be always treated as a Minor Sixth below Sa

(e) **Constituent Unitary Scales :** Fourthly, in five of the Modes one of the two Unitary Scales composing the full Scale is broken up. Thus, the second, the third and the fourth Modes retain in tact only the tetrachord. So, the main phrase of a melody composed in one of these Modes must be based on the tetrachord. On the other hand, the sixth and the seventh Modes have only the pentachord in an unbroken form and the main phrase of a melody in one of these Modes must be based on that Unitary Scale. In the remaining two Modes, viz., the first and the fifth, both the Unitary Scales are in tact. But, their positions are reversed, the pentachord in the first Mode and the tetrachord in the fifth being placed at the lower end. Furthermore, the positions of the Unitary Scales in relation to the initial note are different in the Modes.

It is thus evident that though the relationships amongst the notes of a Scale considered as an unending series of recurring notes are invariable, those relationships appear in varying aspects when we consider the seven possible sections of that series separately. The former kind of relationships amongst notes, which distinguishes one Scale from another, we call the Absolute Relationship of Notes or "Tonality"; and the latter kind, which distinguishes one Mode from another of the same Scale, we call Local Relationship of Notes or "Modality".

C. Common-Tonic and Common-Initial Forms of Modes.

(a). Difficulties of the original forms of the Modes : Aesthetic : The forms, in which the Modes have been shewn

above, have this advantage that there is no difficulty in finding out their Tonics, inasmuch as the same two notes are the Tonics in all of them. Some serious difficulties are, however, encountered when we come to consider them from the æsthetic as well as from the practical point of view. We have seen above that the difference in the æsthetic characters of these Modes depends largely on the difference in the positions of the Tonics in relation to the starting note or initial. But, if we sing or play these Modes without changing the pitches of the notes, it would not be possible for us to appreciate the difference in the positions of the Tonics in relation to the initial note. We can appreciate this difference, if only the initial notes of all the Modes are of the same pitch. But, in the above forms of Modes the Tonics are notes of the same pitch, while the pitch of the initial of every Mode is different from that of every other Mode. In order, therefore, to enable us to appreciate the difference in the æsthetic characters of the Modes, we must bring the initials of all the Modes to the same pitch and alter the pitches of the other notes in accordance with it. For this purpose the initials of all the Modes must be called by the same name, and the names of the other notes of each Mode, except of course those of the first or original Mode, must be altered accordingly.

(b). Practical difficulties : instrumental music : This alteration in the forms of the Modes is also required on account of other difficulties, which arise from the practical point of view. The main theme or period called Āsthāyî of a Rāga composition is usually limited to a single octave. For the other themes called Antarā, Sanchārî and Ābhoga a few notes (usually not more than four) above and below that octave have sometimes to be taken. So, a good composition does not generally exceed two octaves. That is also the usual compass of the average human voice-register. The main string of the standard Indian musical instrument the *Veena* is limited to the same compass. We may, therefore, take the *Veena* to represent the human voice so far as its range is concerned. The compass of this instrument is about two octaves from the fourth note of the

Scale, viz., Ma. Supposing the instrument to be tuned to the Primary First Scale, if we play the Fourth Mode and begin from the Ma of the lower octave, it is easy to see that we would have no notes left for the auxiliary theme which requires notes below the octave of that Mode. If, on the other hand, we begin from the Ma of the middle octave, there would be no notes left for the auxiliary theme which requires notes above the octave of the Mode. Similar difficulties will be more or less encountered in playing any one of the other Modes except the first. The latter is the only Mode that can be played with ease on the instrument. The main theme has to be played on the middle octave of the instrument, which starts with Sa ; and so we have three or four notes above and below it for the other themes. In order that all the Modes can be played with ease on the instrument, it is necessary that each of them should be played on the middle octave like the first Mode. For that purpose each Mode must be so altered in its form that all of them may begin with the note Sa, which is the initial of the first Mode of every Scale. In these altered forms all the Modes would thus have a common initial note. These forms of the Modes are, therefore, to be termed the Common-Initial Forms of Modes, as distinguished from their original forms given above, which have to be called their Common-Tonic Forms.

(c). Vocal and written music : The difficulties referred to above with regard to the *Veena* are similar to those of the human voice. The Common-Initial Forms of the Modes are, therefore, equally suited to the human voice. It is most convenient and, therefore, also natural for us to begin a Mode from our speaking voice, which gives the easiest note, as it requires the least effort of the *larynx*[3]. The few notes below it which we are able to sing require greater effort than the upper notes,

3. On account of the greatest ease with which the note of speaking voice can be sounded a singer has a natural tendency to return frequently to this note, which gives repose after the effort of the higher and the lower notes. It is owing to this tendency that singers usually consider this note as the most important note of the Scale and confound it with the Tonics.

as it is easier to contract the muscles of the larynx than to relax them. The octave which contains the essential notes of the Mode should, therefore, begin with the speaking voice. The common initial of the Modes should, consequently, be made to coincide with it in order that we may easily sing the main theme of a Rāga as well as the other themes with upper and lower notes. There is the further difficulty in using the Modes in their Common-Tonic forms that in written music it would be extremely difficult to correctly ascertain the limit of the Mode without careful scrutiny which is not always practically possible. It would be almost impossible to ascertain the Mode if the Mode-limit is exceeded in the main theme either through mistake or deliberately as is sometimes done by even great composers.

(d). Common-Initial Forms : process of transformation : We have now to see what transformations original Modes undergo in their Common-Initial Forms. There being twenty Scales and each Scale having seven Modes, there are altogether one hundred and forty Modes. Leaving aside the twenty original forms of the Scales, which are to be taken as their First Modes, each of the remaining one hundred and twenty Modes would, in its Common-Initial Form, have one note or more, which have names different from those of the corresponding degrees of the original form. We shall take one of these Modes in order to explain the process of transformation, so that all the other Modes may be similarly transformed with the help of the table of nona-tonic notes given at the end of the third chapter.

Let us take for this purpose the Third Mode of the Primary First Scale which begins with the third note Ga. The notes of this Mode with their intervals in nonatones are given below :

Third Mode of Primary First Scale with Sa and Pa as the Common Tonics.

Ga	Ma	*Pa	Da	Na	*Sa¹	Ra¹	Ga¹
5	9	8	9	5	9	8	

For the Common-Initial Form of this Mode the initial note Ga is to be changed to Sa, the Common Initial universally

accepted. As the second note Ma is five nonatones above the first, it will, in its altered form, be a note flatter than Ra by a Major Small Semitone which consists of four nonatones (9 − 5 = 4). This note is Rŏ. The Third note Pa, which is the Upper Tonic is fourteen nonatones above the initial Ga, i.e. to say, a Minor Third above it. It is, therefore, to be renamed Go. The fourth note is twenty-two nonatones or a Perfect Fourth above the initial. So it is to be called Ma. The next note is Perfect Fifth (31) above the initial and is to be named Pa. The sixth note Sa, which is the Lower Tonic is thirty-six nonatones or a Minor Sixth above Ga, the initial. It is, therefore, to be renamed Do. The seventh note is forty-five nonatones above the initial. So, it is to be called No, which is flatter than Na by a Minor Small Semitone consisting of three nonatones (48 − 45 = 3). The Mode would now stand thus :

Third Mode of Primary First Scale with Sa as Common-Initial.

Sa Rŏ *Go Ma Pa Do No Sa¹

The Lower Tonic in this Mode is the sixth note Do and the Upper Tonic the third note Go. It will be noticed that the above Mode-form contains four flat notes. Owing to the similar character of the five Primary Scales there wiil be four other Mode-forms similar to the above having different notes as Tonics. The five Mode-forms are given below :

Similar Modes of Primary Scales with four flats having Sa as the Common Initial.

Prim. I, Mode 3	Sa	Rŏ	*Go	Ma	Pa	*Do	No	Sa¹
Prim. II, Mode 6	Sa	Ro	*Go	Mâ	Pa	Do	*No	Sa¹
Prim. III, Mode 2	Sa	Rŏ	Gŏ	*Ma	Pă	Do	*Nŏ	Sa¹
Prim. IV, Mode 5	*Sa	Rŏ	Go	*Ma	Pa	Do	Nŏ	Sa¹
Prim. V, Mode 2	Sa	Ro	+Go	+Mâ	Pa	Dŏ	*No	Sa¹

These Modes have the same four flat notes, which are their second, third and sixth and seventh degrees. The other three notes are natural in each. These Modes are distinguishable from each other by means of notes which differ only by a nonatone (comma). When a note is flatter by a nonatone it is, as proposed in the first chapter, shown by the sign (ă) over the vowel-signature and when sharper to the same extent by the sign (â) over it. This difference of a nonatone in the notes, which indicates difference in the positions of theTonics by showing the correct relationships of the other notes to them, are not generally noticed by the average musician. As a consequence, all these Modes appear alike and cannot be distinguished from each other by him.

(e). Semitonic equal temperament : The usual practice all over the world is to divide the octave into twelve equal parts each of which is called a Semitone and two together make a Tone. The distinction between Major and Minor Tones or Semitones is obliterated by this division, all Tones being made equal in length as also the Semitones. This is what is known as the Semitonic equal temperament. The notes of this temperament are to be shown without the above-mentioned nonatonic signs (ă and â)[4]. All the above Modes will appear alike in this temperament. Thus :

Sa Ro Go Ma Pa Do No Sa[1]

It will be easily understood that there is nothing in this form to indicate the positions of the Tonics. The distinction between true and false consonances is obliterated and intervals separated by three, four, five, seven, eight and nine Semitones are regarded as Minor Third, Major Third, Perfect Fourth, Perfect Fifth, Minor Sixth and Major Sixth respectively. So, in the system of notation based on this method of temperament, which we shall

4. This notation which is similar to the Tonic Solfa notation of Europe, has been adopted by Krishnadhan Banerji in his Bengali work on music called "Gita Sutra Sara". This author has also used the staff notation for Indian music.

call Semitonic Notation, it is impossible to distinguish Similar Scales or Modes from each other. The difficulty arising out of this system may be illustrated by the Rāgas Bilāskhāni Todî and Bhairavî. In popular music the notes given above represent both the Modes used in these two Rāgas. But, it is well-known that the two Amsas (Vādî and Samvādî) of Bilāskhāni Todî are the third and the sixth degrees of the Mode (Go and Do), while those of Bhairavî are the first and the fourth degrees (Sa and Ma). This means that the former uses the Third Mode of the Primary First Scale and the latter the Fifth Mode of the Primary Fourth Scale. But, this difference cannot be made out from the above notation which is used for both the Rāgas. Rāgas based on Similar Modes of the three other Primary Scales, would also be written with the same notes. Common-Initial Modes of Secondary First and Fourth Scales, which are similar to each other would present the same difficulty. if written in Semitonic Notation.

(f). Just Notation : Errors in the notes of Semitonic equal temperament amount to only one comma in Modes of Simple Scales as shown above. Errors in Modes of Chromatic Scales are nearly double of that. Thus, the note Si used in Puravi and other Rāgas, which is three nonatones above Sa and the note So, used in Darbāri Todî and other Rāgas, which is three nonatones below Sa^1, are represented in Semitonic Notation by the notes Ro and Na, which are too sharp and too flat respectively by two nonatones. The same error is to be found in regard to the notes Mo used in Lalita, Po used in Darbāri Todî and Pi used in Paraja which are represented by Ga, Mi and Do in Semitonic Notation. All these difficulties and errors can be obviated only by expressing Modes by means of a notation, which is based on just intonation. This notation will be called "Just Notation" as distinguished from "Semitonic Notation".

(g). Notes required for Just Notation: The Sa-initial forms of the Modes of all of the twenty Scales have been worked out in just intonation in the tables appended to the present

chapter[5]. It will be seen from these tables that altogether thirty-three notes have been used for expressing the Modes

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5. The modal chromatic notes used in Indian music must be distinguished from the Key-signatures of European music. In the first place, being based on the Semitonic equal temperament, they do not indicate the distinction of the Similar Scales. The only distinction recognised is that between the Major and the Minor Scales which correspond to the Primary First and Fourth Scales, respectively. The latter is considered as the Descending Minor Scale. The Ascending Minor Scale corresponds to the Secondary First Scale. There is another Minor Scale called the Harmonic Minor Scale, which corresponds to the Secondary Second Scale. The Rāga Piloo is sung in this last mentioned Scale. There is, therefore, no reason to consider it as only a harmonic Scale. Semitonic Notation, as shewn above, does not give even these Scales in just intonation. Secondly, being based on the single Tonic theory, the Key-system gives for each Key only one Key-note, which is the Lower Tonic, leaving us ignorant about the other Tonic, unless we identify the Dominant with the Upper Tonic. Thirdly, it confuses false consonances with the true ones, rendering it impossible to ascertain the positions of the Tonics in the different Scales. As an illustration, we may point out that the signature of four flats, viz. B♭ E♭ A♭ D♭, corresponding to No Go Do Ro given above, may represent either the major key of A♭ (Do) or the minor Key of F (M), giving us no indication as to which Key it is actually to represent. This key, as it will appear from what has been stated above may also represent three other keys. Finally, we are never told whether the purpose of the keys is to have the same scale in different pitches or to have different Modes of the same Scale. Supposing the former to be the aim of the Key system, we must agree with the view, which Prof. Helmholtz seems to hold that the system is almost useless, from the artistic point of view, though it is useful for certain practical purposes, e.g, for facilitating the distribution of notes to the Keys of different instruments with fixed Key-boards used in harmonic music. Some people, however, think that the Key-system has a modal significance. In this connection we may quote here the following passages from "Text-Book of Musical Knowledge, Junior Divisions", by Charles W. Pearce, Mus. D. Cantab. F.R.C.O. :—

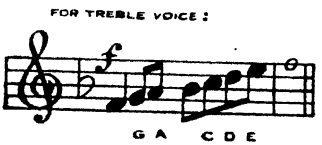
> "Differences in tonal relationship are shown by the various *Key-Signatures* each of which indicates that particular arrangement of notes or *scale* which has been selected by the composer for his music.

in just intonation. These include thirteen natural and twenty chromatic (Vikrita) notes. They are as follows :—

Natural	...	...	Sa,	Ra,	Ga,	Ma,	Pa,	Da,	Na
„	low	...	Ră,	Gă,	Pă,	Nă			
„	high	...	Mâ,	Dâ					

Thus, in the two scale-passages here given in Fig. 2, the five notes indicated by their letter names—G, A, C, D, E—are exactly the same in pitch, intensity, quality, duration, and accent; yet they produce quite a different effect upon the ear, because of the altered relationship which is effected by the change of Key-signature :—

Fig. 2



In the same way the same person may appeal to us differently as we regard him in his various social relationships—as father, son, husband, brother, uncle, cousin, enemy etc."

The differences in tonal relationship expressed so beautifully by Dr. Pearce clearly refers to differences of Modality in the same Scale. Both the octaves of notes of fixed pitch used for the above musical passages are meant for the treble voice. That voice must be ordinarily confined within the octave ranging from F to f considering the necesssity of keeping apart a few notes above and below for the variations. The octave of the first passage, which is in the Major Key of F, is identical with the First Mode of the Primary First Scale having F for its Lower Tonic and also its initial. The octave of the other passage, which is in the Major Key of G, is identical with the Seventh Mode of the same Scale having the same note F as its intial, but with G as its Lower Tonic. This difference in the Tonic evidently accounts for the difference of tonal relationship referred to by the learned author. It will be easily understood that the above octave may be made to represent the different Modes of the Major Scale by changing the Key-signature according to need.

Chromatic :

	Flat	···	So,	Ro,	Go,	Mo,	Po,	Do,	No
„	„ low	···	Rŏ,	Gŏ,	Pŏ,	Nŏ			
„	„ high	···	Dâo, or Dô						
„	„ double		Goo, Noo						
„	Sharp	···	Si,	Mi,	Pi				
	„ high	···	Rî,	Mî,	Dî				

The ratios of all these notes in relation to the starting note Sa and their positions in the nonatonic scale have been shown in the table appended to the third chapter. The notes required for correctly expressing any Mode can be found out from this table.

(h). Indispensibility of Semitonic Notation : Although Just Notation by means of the thirty-three notes mentioned above is indispensably necessary for acquiring a correct scientific knowledge of music, it is not possible to dispense with Semitonic Notation altogether. First, because, having to deal with only twelve notes and being, therefore, easy to learn, it is very suitable for a beginner. Secondly, because it is used universally in modern music not only in India but all over the world. The Melas of modern India are, as will be seen in the chapters on Melas, practically based on the twelve notes of Semitonic Notation. And thirdly, because it can be used as a convenient stepping stone for acquiring higher scientific knowledge of music and understanding its finer aspect. Such use of Semitonic Notation is like showing first the larger constellation *Saptarshi* in order subsequently to show the small star *Arundhatî* included in the constellation. This is one of the familar similitudes used in Indian logic known as "*Arundhatî darshana nyāya*".

(i). Coincident notes required for Semitonic Notation : The five chromatic notes commonly used in Semitonic Notation are, however, not sufficient for expressing the Modes of all Scales. Eleven extra-ordinary notes, which are coincident with nine ordinary notes are required for that purpose. These are :—

(1) For Modes of Primary Scales—the flat note Po coincident with Mi.

(2) For Modes of Secondary Scales—the flat note Mo, coincident with Ga ; the double flat notes Goo and Noo, coincident with Ra and Da ; and the sharp notes Ri, Pi, and Di coincident with Go, Do and No.

(3) For Modes of Chromatic Scales—the double flat notes Poo and Doo, coincident with Ma and Pa ; the sharp note Gi, coincident with Ma and the double sharp note Mii, coincident with Pa. These are required in addition to the above-mentionnd notes required for Primary and Secondary Scales.

Altogether twenty-three notes, including twelve ordinary and eleven extraordinary notes are, thus, required for expressing the Modes in Semitonic Notation. Use of these notes will be found in the chapters on Melas, which represent the Modes.

D. Mode-limit : We have seen that the common-initial system requires as many as twenty chromatic (Vikrita) notes. The common-tonic system, on the other hand, requires only three such notes. We have seen further that if we take Sa and Pa as the common Tonics, the extra notes required for this system would be flat Ga, Da and Na, i.e., Go, Do and No. The first Mode of both these systems has the same form, because we must start in each of them from the same starting point, viz., the Scale of Origin in its original form. So, this Scale may be viewed from two different aspects. As the starting point of the common-tonic system of Modes its Tonics (Sa and Pa) must be considered as fixed notes and the initial has to be shifted in order to have the different Modes ; whereas, as the starting point of the common-initial system, its initial (Sa) is to be considered as a fixed note and one or more of the other notes have to be altered for having the different Modes in which the Tonics would hold different positions and have different names.

We have dealt with the flat system only in this treatise, that being the system which is in common use in India, as will appear from the facts that flat notes are mostly used and that the accompanying instruments are tuned to Sa and Pa.

Taking the Scale of Origin, i.e., the Primary First Scale, which is identical with the Shuddha Scale of northern India, and also with the European Major Scale, as the starting point of the common-tonic system, we have to alter one or more of the three variable notes Ga, Da and Na in order to have the different Simple Scales. For the Chromatic Scales we have first to omit one or the other of the two notes, which are related to each other as false Thirds, viz., Ra and Ma and substitute for it a flat Third (Go), thus doubling the Third between the two Tonics, and then flatten one or both of the other two variable notes Da and Na. For the Fifth Scales of the two Groups of Chromatic Scales we have in addition to double one or the other of the latter two variable notes after omitting a note adjacent to it. We may thus get the First Mode of all the twenty Scales. No other changes are required in the common-tonic system and the notes of each Scale remain unaltered in all its seven Modes. A Mode in this system is identified only by its initial note, which is different in each Mode. So, unless we know the octave of the Scale, in which a particular piece of music is composed we cannot name the Mode used in the piece. For this purpose we must examine the main theme of a Rāga composition, called the Āsthāyî, and find out the octave which is essential for the structure of the Rāga, after eliminating the notes, if any, above or below it, which are not essential for it. In other words, we have got to know the limit of the Mode-octave essential for the Rāga, by definitely ascertaining the initial note of that Mode. Arbitrary extension of the Mode-limit must be considered as inimical to the modal system, which is the basis of Rāga melody. Great care is, therefore, needed for ascertaining the limit of the Mode used in a melody composed according to the Common-Tonic system. On the other hand, no difficulty is to be felt in ascertaining the limit of a Mode in the Common-Initial system if the Mode is in its proper form, because that limit is always the same for all Modes, viz., the octave which starts from the common initial Sa. Difficulty arises only where the Mode is not in its proper form. It is often observed that the Mode-form and the signature

(i.e. to say, the distinctive chromatic notes) customarily used in a particular Rāga are not its proper Mode-form and signature. The modern Mela system of India can be rationally explained only on the basis of the Sa-common-initial system, as will be shown in chapters dealing with Melas. The proper Mode-octave of every modern Rāga should, therefore, hava Sa as its initial note. But, in the case of the Rāga referred to above, Sa is not the initial of the octave which is proper for that Rāga. In such case the Mode-form and the signature should, in order to avoid confusion and uncertainty, be so altered as to make the proper Mode-octave start with Sa as the initial note.

Descriptions customarily given of Rāgas are often found to be wrong and misleading.

Even when the customary description of a Rāga is quite correct, it sometimes becomes difficult to ascertain whether it is so, on account of the fact that classical compositions are often found, in which the proper Mode-octave of the Rāga is exceeded in the main theme (Āsthāyî) of the composition, more than eight notes being used in it. Much circumspection is needed in such cases for ascertaining the proper Mode-limit of the Rāga. A large number of compositions has to be examined for this purpose. The most important thing to be taken into consideration in such cases is the structure of the characteristic and complementary phrases constituting a Rāga. If this is definitely known, no difficulty need be felt in ascertaining the Mode-octave, as great composers are quite careful about the structure of these phrases, even when they take the liberty of exceeding the Mode-limit.

E. Tuning of Accompanying Instruments.

(a). Conflict between theory and practice: Common-Initial Forms of Modes present certain difficulties from the practical point of view, which arise out of the well-established custom, in modern Indian music, of using drums as accompaniments to both vocal and instrumental music, and the stringed

instrument called *Tānpurā* as accompaniment to only vocal music. The main purpose of the drums is to keep time. Drumming has been very highly developed in India and may be considered to be an art in itself. Besides keeping time, drums have another very important function to perform. The rhythm of music is expressed through them in almost unending forms and styles. Either two drums to be played separately by the two hands or a single one with two sides to be played similarly, are used according to the style of the music. The *Pākhwāj* (called Mridanga in Sanskrit works) is used for the *Dhrupad* style of music and *Tablā* and *Bāyāṅ* for the *Kheyāl*, *Tappā* and other styles of music. The prevalent practice is to tune the right side of the *Pākhwāj* or the *Tablā*, as the case may be, to *Shadja* (Sa) the first note of the Indian gamut. As this note is sustained throughout by means of the Tabla, it must be identical with one of the Tonics of the Mode in which the music is composed, unless it is to be endured as a continuous jarring sound. For the same reason the left side of the *Pākhwāj* or the *Bāyāṅ* ought to be tuned to the other Tonic of the Mode, though little attention is usually bestowed on tuning this drum. Another instrument of great importance, which is considered as an indispensable accompaniment to classical vocal music, is the *Tānpurā*, a stringed instrument of four wires. Two of these wires are tuned to Sa of the mid-octave, one to the same note of the lower octave and the fourth to Pa. These notes are sounded continuously close to the ear of the musician. By means of a device, known as the *Jawāri*, the wires are made to produce a series of upper partials which can be distinctly heard. In order that the notes produced by these wires may be of help to the musician, they and their overtones must coincide with the notes of the Mode in which the music is composed. The prevalent tuning of the *Tānpurā* to Sa and Pa is, therefore, suitable only to the Primary First Scale, which has these notes as its Tonics. If another wire tuned to Ma is added, as it is done sometimes, we get all the notes of this Scale from these three notes and their overtones. It needs hardly be pointed out that such tuning of the Tānpurā must be of immense help to the musician,

in singing the notes of the Scale in perfectly correct intonation. This tuning will not, however, be of much help in those Scales in which the third above one or more of the above-mentioned notes is a Minor Third, inasmuch as this note is not included in the upper partials of any one of those notes. These observations apply also to the tuning of the drums, which must be done in the same manner as it is done in the case of the Tānpurā. It will be evident from what has been stated above that this tuning is applicable only to the Common-Tonic forms of Modes, which have Sa and Pa for their Tonics. Here we are faced with the difficulties involved in having to take different notes as the initials of the different Modes, explained above. Here again we are confronted with a conflict between theory and practice. According to theory, as we find it propounded in all the authoritative works on music and almost universally accepted by musicians, every Rāga has, for its Amsas, notes which are quite different from those of almost all other Rāgas. This indicates the Common-Initial system. The anomaly may be accounted for, in the first place, by the ignorance of most musicians about the correct Amsas of the Rāgas ; secondly, by the difference of opinion regarding them even amongst those who are cognisant with them ; and thirdly and mainly, by the inconvenience of tuning the instruments anew every time a Rāga having Tonics which are different from those of the preceding one is sung. The aforesaid method of tuning may be a relic of the practice of that ancient period of Indian music, in which the Common-Inital Forms of Modes were unknown. If the Common-Initial system be, on the grounds set forth above, accepted as the proper system, means must be found out for introducing a method of tuning which is consistent with that system.

(b). Solution of the problem : This problem of tuning drums and *Tānpurā* is, however, not so formidable as it looks at first. There is no doubt that these instruments have to be tuned anew for every Rāga which is written in the Common-Initial system. But, it is a remarkable feature of that system that it requires only ten different kinds of tuning for the one

hundred and forty Modes of the twenty Scales. It will be noticed from the Mode tables that First Modes of all the Scales have Sa and Pa, Second Modes have Ma and Nŏ, Fourth Modes have Ra and Pa, and Fifth Modes have Sa and Ma as their Tonics. Third Modes have either Ga and Da or Go and Do, Sixth Modes either Ga and Na or Go and No, and Seventh Modes either Ră and Da or Rŏ and Do as their Tonics. It will be further observed that First and Fifth Modes have Sa, Second and Fifth Modes have Ma, and First and Fourth Modes have Pa as their common Tonics. Some of the Third Modes and some of the Sixth Modes have Ga and others have Go, some of the Third and some of the Seventh Modes have Da and others have Do as their common Tonics.

The aforesaid ten pairs of Tonics may be divided into three groups :

(1)	(2)	(3)
Ra, Pa	Ga, Na	Go, No
Sa, Pa	Ga, Da	Go, Do
Sa, Ma	Ră, Da	Rŏ, Do
Ma, Nŏ		

If a Tānpurā or a drum be tuned to any pair of Tonics in one of these groups, the tuning can be changed to the pair next to it by either raising or lowering only one of the notes by a single tone, which is very easy to do. The exception is the alteration of the pair Sa, Ma to the pair Ma, Nŏ and *vice versa*. The note Sa has to be raised in one case and Nŏ has to be lowered in the other by about one octave, which is very difficult to do. To avoid this difficulty Nŏ may be placed in the lower octave ($Nŏ_1$) which is rather an inconvenient position for it being beyond the Mode-limit. So long as a musician sings compositions in the same Mode of any number of Scales, there would be no need for change of tuning. If he wants to change the Mode, he will find little difficulty in re-tuning his Tānpurā and drums, if he sings the Modes in the order in which their Tonics are placed in the above

groups. He will no doubt have to take some pains if he wants to pass from one group to another. The best course for avoiding this inconvenience is to keep ready at hand three Tānpurās and three drums tuned to one of the pairs of Tonics of each group.

(c). Tuning in ancient India : A similar device of tuning drums in different ways was followed in ancient India. In Bhāratiya Nātya Shāstra we find mention of three kinds of tuning for drums intended for the three ancient Scales, the Madhyama, the Shadja and the Gāndhāra Grāmas. They were called Māyurî, Ardha Mayurî and Karmāravî Mārjanās respectively. Three drums called *Pushkaras*, one of which was kept erect and called *Urdhwa Pushkara*, and the other two called *Dakshina* and *Bāma Pushkaras*, were tuned to the three Tonics of each Scale[6]. These ancient methods of tuning will be explained in a subsequent chapter.

The letters P and S in the following tables stand for Primary and Secondary Scales respectively. The Roman numerals after them indicate their numbers. E. g., P IV indicates Primary Fourth Scale.

(*Mode tables overleaf.*)

6. It is interesting to note that the three notes of Māyurî tuning correspond exactly with the three notes constituting the Tonic chord of the European Major Scale. This shows the keen sense of tonality ancient Indians possessed.

F. COMMON-INITIAL MODE TABLES

I.
PRIMARY FIRST SCALE:

[Converse—Prim. IV.]

Mode No	Modal Notes	Converting Note			
		PII	PIV	SI	SIII
1	*Sa Ra *Ga Ma *Pa Da Na Sa¹	No	Mî	Go	Do
2	Sa *Ră Gŏ *Ma Pă Da *Nŏ Sa¹	Do	Ga	Rŏ	Pŏ
3	*Sa Rŏ *Go Ma Pa *Do No Sa¹	Po	Ra	So	Mo
4	Sa *Ra Ga Mî *Pa Dâ *Na Sa¹	Mâ	Sî	No	Go
5	*Sa Ră Ga *Ma Pa *Da Nŏ Sa¹	Go	Na	Do	Rŏ
6	Sa Ra *Go Mâ *Pa Do *No Sa¹	Ro	Dâ	Po	So
7	Sa *Rŏ Go *Ma Pŏ *Do Nŏ Sa¹	So	Pa	Mo	Noo

II.
PRIMARY SECOND SCALE:

[Converse—Prim. III.]

Mode No.	Modal Notes	Converting Note			
		PI	PIII	PV	SIV
1	*Sa Ra Ga Ma *Pa Da No Sa¹	Na	Go	Mâ	Do
2	Sa Ră Gŏ *Ma Pă Do *Nŏ Sa¹	Da	Rŏ	Go	Pŏ
3	Sa Rŏ *Go Ma Po *Do No Sa¹	Pa	So	Ro	Mo
4	Sa *Ra Ga Mâ *Pa Dâ Na Sa¹	Mî	No	Sâ	Go
5	*Sa Ră Go *Ma Pa Da Nŏ Sa¹	Ga	Do	No	Rŏ
6	Sa Ro *Go Mâ Pa Do *No Sa¹	Ra	Po	Dô	So
7	Sa *Ră Ga Mi Pă *Da Nă Sa¹	Si	Ma	Pa	Nŏ

III.
PRIMARY THIRD SCALE :

[Converse—Prim. II.]

Mode No.	Modal Notes	Converting Note			
		PII	PIV	PV	SI
1	*Sa Ra Go Ma *Pa Da No Sa¹	Ga	Do	Ră	Na
2	Sa Ră Gŏ *Ma Pă Do *Nŏ Sa¹	Ră	Pŏ	Să	Da
3	Sa Ră *Ga Mi Pa *Da Na Sa¹	Si	Ma	Nă	Pi
4	Sa *Ra Ga Mâ *Pa Dâ No Sa¹	Na	Go	Da	Mî
5	*Sa Ră Go *Ma Pa Do Nŏ Sa¹	Da	Ră	Pă	Ga
6	Sa Ro *Go Mâ Po Do *No Sa¹	Pa	So	Ma	Ra
7	Sa *Ră Ga Ma Pă *Da Nă Sa¹	Mi	Nŏ	Gă	Si

IV.
PRIMARY FOURTH SCALE

[Converse—Prim. I.]

Mode No.	Modal Notes	Converting Note			
		PI	PIII	SII	SIV
1	*Sa Ra *Go Ma *Pa Do No Sa¹	Ră	Da	Na	Ga
2	Sa *Ră Gŏ *Ma Pŏ Do *Nŏ Sa¹	Sŏ	Pă	Da	Ră
3	*Sa Ră *Ga Ma Pa *Da Na Sa¹	Nŏ	Mi	Pi	Si
4	Sa *Ra Go Mâ *Pa Dâ *No Sa¹	Do	Ga	Mî	Na
5	*Sa Ră Go *Ma Pa *Do Nŏ Sa¹	Pŏ	Ră	Ga	Da
6	Sa Ra *Ga Mî *Pa Da *Na Sa¹	Ma	Si	Rî	Pi
7	Sa *Ră Ga *Ma Pă *Da Nŏ Sa¹	Gŏ	Nă	Si	Mi

V.

PRIMARY FIFTH SCALE:

Mode No.	Modal Notes								Converting Note	
									PII	PIII
1	*Sa	Rĕ	Go	+Ma	+Pa	Da	No	Sa¹	Nŏ	Ra
2	Sa	Ro	+Go	+Mâ	Pa	Dô	*No	Sa¹	Do	Sâ
3	Sa	+Rĕ	+Ga	Mi	Pa	*Da	Nĕ	Sa¹	Pĕ	Na
4	+Sa	+Ra	Ga	Mâ	*Pa	Da	No	Sa¹	Ma	Dâ
5	+Sa	Rĕ	Go	*Ma	Pĕ	Do	+Nŏ	Sa¹	Gŏ	Pa
6	Sa	Ro	*Go	Ma	Po	+Do	+No	Sa¹	Rŏ	Mâ
7	Sa	*Rĕ	Gĕ	Ma	+Pĕ	+Da	Nĕ	Sa¹	Sĕ	Ga

VI.

SECONDARY FIRST SCALE

[Converse—Sec. IV.]

Mode No.	Modal Note								Converting Note		
									PI	PIII	SII
1	*Sa	Ra	Go	Ma	*Pa	Da	Na	Sa¹	Ga	No	Do
2	Sa	Rŏ	Gŏ	*Ma	Pĕ	Da	*Nŏ	Sa¹	Rĕ	Do	Pŏ
3	Sa	Rĕ	*Ga	Mi	Pi	*Da	Na	Sa¹	Si	Pa	Ma
4	Sa	*Ra	Ga	Mî	*Pa	Dâ	No	Sa¹	Na	Mâ	Go
5	*Sa	Rĕ	Ga	*Ma	Pa	Do	Nŏ	Sa¹	Da	Go	Rŏ
6	Sa	Ra	*Go	Mâ	Po	Do	*No	Sa¹	Pa	Ro	So
7	Sa	*Rŏ	Go	Mo	Pŏ	*Do	Nŏ	Sa¹	Ma	So	Noo

VII.
SECONDARY SECOND SCALE :

[Converse—Sec. III.]

Mode No.	Modal Notes								Converting Note			
									PIV	SI	SIII	SV
1	*Sa	Ra	Go	Ma	*Pa	Do	Na	Sa_1	No	Da	Ga	Mî
2	Sa	Rŏ	Gŏ	*Ma	Pŏ	Da	*Nŏ	Sa^1	Do	Pă	Ră	Ga
3	Sa	Ră	*Ga	Ma	Pi	*Da	Na	Sa^1	Pa	Mi	Si	Rî
4	Sa	*Ra	Go	Mî	*Pa	Dâ	No	Sa^1	Mâ	Ga	Na	Sî
5	*Sa	Rŏ	Ga	*Ma	Pa	Do	Nŏ	Sa^1	Go	Ră	Da	Na
6	Sa	Rî	*Ga	Mî	Pa	Da	*Na	Sa^1	Ra	Si	Pi	Dî
7	Sa	*Rŏ	Go	Mo	Pŏ	*Do	Noo	Sa^1	So	Nŏ	Ma	Pa

VIII.
SECONDARY THIRD SCALE

[Converse—Sec. II.]

Mode No.	Modal Notes								Converting Note			
									PI	SII	SIV	SV
1	*Sa	Ra	Ga	Ma	*Pa	Do	Na	Sa^1	Da	Go	No	Rŏ
2	Sa	Ră	Gŏ	*Ma	Pŏ	Da	*Nŏ	Sa^1	Pă	Rŏ	Do	Sŏ
3	Sa	Rŏ	*Go	Mo	Pa	*Do	No	Sa^1	Ma	So	Po	Noo
4	Sa	*Ra	Go	Mî	*Pa	Dâ	Na	Sa^1	Ga	No	Mâ	Do
5	*Sa	Rŏ	Ga	*Ma	Pa	Da	Nŏ	Sa^1	Ră	Do	Go	Pŏ
6	Sa	Rî	*Ga	Mî	Pi	Da	*Na	Sa^1	Si	Pa	Ra	Ma
7	Sa	*Rŏ	Go	Ma	Pŏ	*Do	Noo	Sa^1	Nŏ	Mo	So	Goo

IX.

SECONDARY FOURTH SCALE:

[Converse—Sec. I]

Mode No.	Modal Notes								Converting Note		
									PII	PIV	SIII
1	*Sa	Ra	Ga	Ma	*Pa	Do	No	Sa¹	Da	Go	Na
2	Sa	Rĕ	Gŏ	*Ma	Pŏ	Do	*Nŏ	Sa¹	Pĕ	Rŏ	Da
3	Sa	Rŏ	*Go	Mo	Po	*Do	No	Sa¹	Ma	So	Pa
4	Sa	*Ra	Go	Mâ	*Pa	Dâ	Na	Sa¹	Ga	No	Mî
5	*Sa	Rŏ	Go	*Ma	Pa	Da	Nŏ	Sa¹	Rĕ	Do	Ga
6	Sa	Ra	*Ga	Mî	Pi	Da	*Na	Sa¹	Si	Pa	Rî
7	Sa	*Rĕ	Ga	Mi	Pĕ	*Da	Nŏ	Sa¹	Nĕ	Ma	Si

SECONDARY FIFTH SCALE

Mode No.	Modal Notes								Converting Note	
									SII	SIII
1	*Sa	Rŏ	Ga	+Ma	+Pa	Do	Na	Sa¹	Nŏ	Ra
2	Sa	Rî	+Ga	+Mî	Pa	Dî	*Na	Sa¹	Da	Sî
3	Sa	+Rŏ	+Go	Mo	Pa	*Do	Noo	Sa¹	Pŏ	No
4	+Sa	+Ra	Go	Mî	*Pa	Do	Na	Sa¹	Ma	Dâ
5	+Sa	Rŏ	Ga	*Ma	Pŏ	Da	+Nŏ	Sa¹	Gŏ	Pa
6	Sa	Rî	*Ga	Ma	Pi	+Da	+Na	Sa¹	Rĕ	Mî
7	Sa	*Rŏ	Goo	Ma	+Pŏ	+Do	Noo	Sa¹	Sŏ	Go

XI.

CHROMATIC GROUP A FIRST SCALE : [Converse—Chrom. B, III.]

Mode No.	Modal Notes							
1	*Sa	Go	Ga	Ma	*Pa	Da	Na	Sa¹
3*a*	Sa	Si	Rǎ	*Ga	Mi	Pi	*Da	Sa¹
3*b*	Sa	Rŏ	*Go	Ma	Pa	*Do	So	Sa¹
4	Sa	*Ra	Ga	Mî	*Pa	No	Na	Sa¹
5	*Sa	Rǎ	Ga	*Ma	Do	Da	Nŏ	Sa¹
6	Sa	Ra	*Go	Po	Pa	Do	*No	Sa¹
7	Sa	*Rŏ	Mo	Ma	Pŏ	*Do	Nŏ	Sa¹

XII.

CHROMATIC GROUP A SECOND SCALE : [Converse—Chrom. B, II.]

Mode No.	Modal Notes							
1	*Sa	Go	Ga	Ma	*Pa	Da	No	Sa¹
3*a*	Sa	Si	Rǎ	*Ga	Mi	Pa	*Da	Sa¹
3*b*	Sa	Rŏ	*Go	Ma	Po	*Do	So	Sa¹
4	Sa	*Ra	Ga	Mâ	*Pa	No	Na	Sa¹
5	*Sa	Rǎ	Go	*Ma	Do	Da	Nŏ	Sa¹
6	Sa	Ro	*Go	Po	Pa	Do	*No	Sa¹
7	Sa	*Rǎ	Ma	Mi	Pǎ	*Da	Nǎ	Sa¹

XIII.

CHROMATIC GROUP A THIRD SCALE: [Converse—Chrom. B, I.]

Mode No.	Modal Notes							
1	*Sa	Go	Ga	Ma	*Pa	Do	No	Sa[1]
3*a*	Sa	Si	Rä	*Ga	Ma	Pa	*Da	Sa[1]
3*b*	Sa	Rŏ	*Go	Mo	Po	*Do	So	Sa[1]
4	Sa	*Ra	Go	Mâ	*Pa	No	Na	Sa[1]
5	*Sa	Rŏ	Go	*Ma	Do	Da	Nŏ	Sa[1]
6	Sa	Ra	*Ga	Pa	Pi	Da	*Na	Sa[1]
7	Sa	*Rä	Ma	Mi	Pä	*Da	Nŏ	Sa[1]

XIV.

CHROMATIC GROUP A FOURTH SCALE: [Converse—Chrom. B, IV.]

Mode No.	Modal Notes							
1	*Sa	Go	Ga	Ma	*Pa	Do	Na	Sa[1]
3*a*	Sa	Si	Rä	*Ga	Ma	Pi	*Da	Sa[1]
3*b*	Sa	Rŏ	*Go	Mo	Pa	*Do	So	Sa[1]
4	Sa	*Ra	Go	Mi	*Pa	No	Na	Sa[1]
5	*Sa	Rŏ	Ga	*Ma	Do	Da	Nŏ	Sa[1]
6	Sa	Rî	*Ga	Pa	Pi	Da	*Na	Sa[1]
7	Sa	*Rŏ	Mo	Ma	Pŏ	*Do	Noo	Sa[1]

XV.

CHROMATIC GROUP A
FIFTH SCALE: [Converse—Chrom. B, V.]

Mode No.	Modal Notes							
1	*Sa	Go	Ga	Ma	*Pa	No	Na	Sa¹
3*a*	Sa	Si	Rǎ	*Ga	Pa	Pi	*Da	Sa¹
3*b*	Sa	Rŏ	*Go	Po	Pa	*Do	So	Sa¹
4	Sa	*Ra	Mâ	Mi	*Pa	No	Na	Sa¹
5	*Sa	Go	Ga	*Ma	Do	Da	Nŏ	Sa¹
7*a*	Sa	Si	*Rǎ	Ma	Mi	Pǎ	*Da	Sa¹
7*b*	Sa	*Rŏ	Mo	Ma	Pŏ	*Do	So	Sa¹

XVI.

CHROMATIC GROUP B
FIRST SCALE: [Converse—Chrom. A, III.]

Mode No.	Modal Notes							
1	*Sa	Ra	Go	Ga	*Pa	Da	Na	Sa¹
2	Sa	Rŏ	Rǎ	*Ma	Pǎ	Da	*Nŏ	Sa¹
3*a*	Sa	Si	*Ga	Mi	Pi	*Da	Na	Sa¹
3*b*	Sa	*Go	Ma	Pa	*Do	No	So	Sa¹
5	*Sa	Rǎ	Ga	*Ma	Pa	Do	Da	Sa¹
6	Sa	Ra	*Go	Mâ	Po	Pa	*No	Sa¹
7	Sa	*Rŏ	Go	Mo	Ma	*Do	Nŏ	Sa¹

XVII.

CHROMATIC
GROUP B
SECOND SCALE : [Converse—Chrom. A, II]

Mode No.	Modal Notes							
1	*Sa	Ra	Go	Ga	*Pa	Da	No	Sa¹
2	Sa	Rŏ	Ră	*Ma	Pă	Do	*Nŏ	Sa¹
3*a*	Sa	Si	*Ga	Mi	Pa	*Da	Na	Sa¹
3*b*	Sa	*Go	Ma	Po	*Do	No	So	Sa¹
5	*Sa	Ră	Go	*Ma	Pa	Do	Da	Sa¹
6	Sa	Ro	*Go	Mâ	Po	Pa	*No	Sa¹
7	Sa	*Ră	Ga	Ma	Mi	*Da	Nă	Sa¹

XVIII.

CHROMATIC
GROUP B
THIRD SCALE : [Converse—Chrom. A, I.]

Mode No.	Modal Notes							
1	*Sa	Ra	Go	Ga	*Pa	Do	No	Sa¹
2	Sa	Rŏ	Ră	*Ma	Pŏ	Do	*Nŏ	Sa¹
3*a*	Sa	Si	*Ga	Ma	Pa	*Da	Na	Sa¹
3*b*	Sa	*Go	Mo	Po	*Do	No	So	Sa¹
5	*Sa	Rŏ	Go	*Ma	Pa	Do	Da	Sa¹
6	Sa	Ra	*Ga	Mî	Pa	Pi	*Na	Sa¹
7	Sa	*Ră	Ga	Ma	Mi	*Da	Nŏ	Sa¹

XIX

CHROMATIC
GROUP B
FOURTH SCALE : [Converse—Chrom. A, IV.]

Mode No.	Modal Notes							
1	*Sa	Ra	Go	Ga	*Pa	Do	Na	Sa[1]
2	Sa	Rŏ	Ră	*Ma	Pŏ	Da	*Nŏ	Sa[1]
3*a*	Sa	Si	*Ga	Ma	Pi	*Da	Na	Sa[1]
3*b*	Sa	*Go	Mo	Pa	*Do	No	So	Sa[1]
5	*Sa	Rŏ	Ga	*Ma	Pa	Do	Da	Sa[1]
6	Sa	Rî	*Ga	Mî	Pa	Pi	*Na	Sa[1]
7	Sa	*Rŏ	Go	Mo	Ma	*Do	Noo	Sa[1]

XX

CHROMATIC
GROUP B
FIFTH SCALE : [Converse—Chrom. A, V.]

Mode No.	Modal Notes							
1	*Sa	Ra	Go	Ga	*Pa	Do	Da	Sa[1]
2	Sa	Rŏ	Ră	*Ma	Pŏ	Pă	*Nŏ	Sa[1]
3*a*	Sa	Si	*Ga	Ma	Mi	*Da	Na	Sa[1]
3*b*	Sa	*Go	Mo	Ma	*Do	No	So	Sa[1]
5	*Sa	Rŏ	Ră	*Ma	Pa	Do	Da	Sa[1]
6*a*	Sa	Si	*Ga	Mî	Pa	Pi	*Na	Sa[1]
6*b*	Sa	*Go	Mâ	Po	Pa	*No	So	Sa[1]

PART II.

MUSIC IN ANCIENT AND MEDIEVAL INDIA.

CHAPTER VIII.

MUSICAL SYSTEM OF ANCIENT INDIA.

In the preceding chapters endeavour has been made to explain the scientific basis of music. The principles enunciated therein are universal and applicable to all systems of music. We are, however, concerned in the present treatise with melodic music as it appears in the modern Rāga system of India. This system is the product of an evolutionary process, which developed through long ages. For want of a reliable chronological data it is not possible to trace correctly the full story of that evolution. Attempt will, nevertheless, be made to give in the present chapter a rough outline of the ancient systems representing the earlier stages in the development of musical ideas in India, reserving for a subsequent chapter the treatment of the evolutionary process leading to the perfection of the modern conception of Rāgas.

A. PRE-JĀTI DEVELOPMENTS.

Musical history of ancient India may be roughly divided into three periods, each of which extend over several centuries. They may be termed pre-Jāti, Jāti and Rāga periods. We have very little information about the pre-Jāti period which began just after the Vedic age several centuries before the Christian era. The only information regarding the condition of Indian music during this period is to be found in two chapters of Nāradîyā Shikshā, a work on Vedic prosody, a few stray verses in Bhāratiya Nātya Shāstra and the seven compositions for instrumental music found in the Kudimiyāmālai rock inscription of uncertain date. The Bhāratiya Nātya Shāstra, which

belongs to the Jāti period, appears to have embodied some traditions regarding music of the pre-Jāti period. The description given in the Nāradīyā Shikshā is very meagre and throws little light on the character of the music described in it. It would have been impossible to understand clearly the nature of that music without the help of Bhāratiya Nātya Shāstra, though that work belongs to a later period.

(a). Three Gramas : The oldest secular scale of India, known as the Shadja Grāma developed from the ancient tetrachord in which the hymns of the Sāma Veda were chanted. Later on another scale, called the Madhyama Grāma, was added to the secular musical system. The third scale, known as the Gāndhāra Grāma, was taken from the musical system of the Gandharvas, who according to legendary accounts, were a semi-divine people living in some part of the mountainous regions of the Himalayās. In the second khanda of the first Prapāthaka of the Nāradîyā Shikshā it is mentioned that Nārada holds that the Gāndhāra Grāma originated in "Svarga" (heaven) and that its seven Murchhanās were sung by the Gandharvas. We find in Harivamsa that Nārada, Krishna, Pradyumna and other Bhaima chiefs learnt Deva Gandharva Chhālikya music based on six Grāmas including Gāndhāra Grāma in the court of Indra[1]. Nārada is traditionally believed to have belonged to the Gandharva race. It may be inferred from this tradition that it was Gandharva Nārada who taught the Gāndhāra Grāma to the Bhaimas. Nārada has always been honoured as a great authority on music. There is a musical school named after him and several musical works are ascribed to him. That a considerable portion of ancient Indian

1. "विवेद कृष्णश्च सनारदश्च
प्रद्युम्नमुख्य नृप भैममुख्यैः।"
Harivamsa, Vishnu Parva,
Ch. 89.

music was contributed by the Gandharvas is evident from the fact that music was called in ancient books Gāndharva Vidyā. The three Grāmas mentioned appear to have been the sole basis of ancient Indian music for a long time. It is a noteworthy fact that the only three methods of tuning (*mārjanā*) of drums (*pushkara*) recognised in the ancient system were based on those three Grāmas. These tunings were called Māyurî, Ardha-māyurî and Karmāravî Mārjanās. These appear to have been the tunings popularly used for several centuries, as we find mention of the Māyurî Mārjanā in Mālavikāgnimitra, a drama by the great poet Kālidāsa, belonging to the sixth century A D. The tradition about the three Grāmas including the Gāndhāra Grāma is so persistent that they are mentioned in some classical compositions of modern Hindusthānî music. The tonality of the Gāndhāra Grāma was, however, subsequently forgotten and it came to be believed that it exists only in heaven and not in this world. In fact, however, it never disappeared, but was transformed into a derivative of the Shadja Grāma called "Sādhārita", which will be shown to be identical in tonality with Gāndhāra Grāma.

(b). Four Grāmas : This transformation was effected by means of a process known as the Sādhārana Kriyā, which gave rise to two distinct scales from the two ancient Grāmas. Though each of them possessed a distinct tonality they were considered not as different Grāmas, but, as derivatives of the two ancient Grāmas. Thus, not only the imported Gāndhāra Grāma was preserved in the orthodox system, but a new scale was added to it. Ancient Indian music now came to recognise four different scales, which, as we shall see presently, correspond to the first four Primary Scales. The scale derived from Shadja Grāma was called Shadja Sādhārana or Sādhārita and that derived from Madhyama Groma was called Madhyama Sādhārana or Kaishika. Though these two new scales were never given the name "Grāma" we shall, for the sake of convenience, call them Grāmas. These four Grāmas were used in the five different sections of ancient dramas, as we find in

the following verses in the thirty-second chapter of Bhāratiya Nātya Shāstra :—

"ततश्च काव्यबन्धेषु नानाभावसमाश्रयम् ।
ग्रामद्वयं च कर्तव्यं यथासाधारणाश्रयम् ॥
मुखे तु मध्यम-ग्रामः षड्जः प्रतिमुखे भवेत् ।
साधारितं तथा गर्भे विमर्शे चैव मध्यमम् ॥
कैशिकं च तथा कार्यं गानं निर्वहणे बुधैः ।
संनिवृत्ताश्रयं चैव रसभावसमन्वितम् ॥" 2

"The two Grāmas together with their Sādhāranas are to be used in the different sections of a drama for expressing various sentiments. Madhyama Grāma is to be used in the section called *Mukha*, Shadja Grāma in the *Prati-mukha* section, Sādhārita in the *Garbha*, Madhyama in the *Vimarsha*, and music in Kaishika in the *Nirvahana* section in order to express various emotions"

Bh. N. S., Ch. 32.

It should be pointed out that this reference to the four Grāmas as basis of dramatic music relates to a period earlier than that of Jātis which became the basis of that music later on. The Nātya Shastra bears clear evidence of several rehandlings by which musical systems of different periods were incorporated in it. The chronological sequence of these different systems must be judged from internal evidence.

(c). **Six Grāmas :** It appears that two more Grāmas were added to the aforesaid four. In Harivamsa mention is made of

2. In the Kāvyamālā edition (p. 406) the word पंचमम् is found at the end of the fourth line. We have substituted for it मध्यमम्, which is found in its place in manuscript A mentioned by Mr. Bhandarkar in Indian Antiquary Vol. XLI, p. 158 n. 2. Mr. Bhandarkar remarks that this manuscript is on the whole more trustworthy than those on which the printed edition is based (Vide Epigraphia Indica, Vol. XII, No. 28, Kudimiyāmālai inscription on mnsic, pp. 226-37).

music based on *Shad-Grāma* (six scales)[3]. The names of these Grāmas except that of the Gāndhāra Grāma are not given in the book. Melodies based on these Grāmas came to be called by some writers of a later period Shad-grāma Rāgas. These melodies came into existence long before modern Rāgas were conceived. It is, therefore, to be presumed that the word Rāga was originally used in a different sense. Medieval Hindusthānî musicians, however, appear to have understood the word in its modern sense and started their theory of six Rāgas on the basis of the ancient tradition of the Shad-Grāma Rāgas.

3. The word "Shad-Grāma-Rāga is found in two places in the eighty-ninth chapter of the Vishnu-parva of Harivamsa. The famous Chhalikya Gandharva music was based on them. It is stated that this music was performed in the court of Indra in honour of his guest Sri Krishna, who himself played on the instrument called Hallishaka, while Nārada played on the Veena. This music was highly appreciated and mastered by the Bhaimas, who brought it to India where it soon became very popular. An elaborate account of this beautiful music is given in the aforesaid chapters. In the ninty-third chapter an interesting episode is given narrating the performance of this music by ladies of the Bhaima race in the court of the great Asura king Vajranābha. The Bhaimas were invited by this King to give dramatic performance in his court. The subject-matter of the drama was the legendary account of descent of the sacred river Ganga from heaven. These Bhaimas, who were expert dramatic players, singers and dancers included the sons of Sri Krishna Pradyumna and Shāmba. The Nāndî or prologue was performed by them in accompaniment with various musical instruments. Then the verses describing the descent of Ganga was recited by Pradyumna. This was followed by performance of Deva Gandharva Chhālikya music in the *Ā-gāndhāra-grāma-rāga* by the ladies of the Bhaimas, describing the descent of Gangā. The Asuras were so much over-joyed that they repeatedly stood up and cheered the performers. The verse in which the Gāndhāra Grāma is mentioned is as follows :—

'अतस्तु देवगान्धर्वं छालिक्यं श्रवणामृतम् ।
भैमस्त्रियः प्रजगिरे मनःश्रोत्र-सुखावहम् ॥
आगान्धारग्रामरागं गंगावतरणं तथा ।
विद्धं आसारितं रम्यं जगिरे स्वर-सम्पदा ॥"

(d). **Seven Grāmas :** A seventh Grāma was subsequently created. This is evident from the fact that Shārngadeva in his Sangîta Ratnākara speaks of Sapta (seven) Grāma Rāgas. This writer, who takes most of his materials from Matanga, Yāstika and other earlier writers, places the seven Shuddha Grāma Rāgas at the head of his list of Rāgas, thereby indicating that these so-called Grāma-Rāgas were the earliest and the most famous of their kind. The names of these Grāma Rāgas as given by Shārngdeva are identical with those given in the fourth Khanda of the first Prapāthaka of Nāradîyā Sikshā and in the rock inscription discovered at Kudumiyāmālāi in Southern India. These names are :—

1. Shadja Grāma
2. Madhyama Grāma
3. Panchana
4. Shādava
5. Sādhārita
6. Kaishika Madhyama
7. Kaishika.

It has to be pointed out that these seven are neither called Rāgas nor even Grāmas except the first two either in the Shikshā or in the rock inscription. For the present we shall call them Grāmas. In the following chapters we shall call them basic modes. The aforesaid khanda of the Shikshā evidently deals with a stage of development of Indian music which is later than that dealt with in the second Khanda referred to above, as find in it no mention of Gāndhāra Grāma, Sādhārita being mentioned instead.

About the last two Grāmas it is stated in the Shikshā that the notes of both are identical and that they are both derived from the Madhyama Grāma. When Madhyama is taken as the predominant (Nyāsa) note it is called Kaishika Madhyama and whem Panchama is taken as such it is called Kaishika by Kāshyapa[4].

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4. "कैशिकं भावमित्वा तु स्वरैः सर्वैः समन्ततः।
यस्मात्तु मध्यमे न्यासस्तस्मात् कैशिकमध्यमः॥
काकलिर्दृश्यते यत्र प्राधान्यं पंचमस्य तु।
काश्यपः कैशिकं प्राह मध्यम-ग्राम-सम्भवम्॥"

Nar. Shik., 1, 4, 10-11.

It thus appears that originally there were only six Grāmas as stated in the Harivamsa. The seventh was introduced later on by Kāshyapa. This Kaishika Grāma of Kāshyapa came to hold subsequently a very conspicuous position in Indian music. It is, as we shall see, practically identical with the Sādhārana Grāma of Shārngadeva and the Shuddha Grāma of modern Hindusthānî music. Māyurî, the most popular of the three Mārjanās, was based on this Scale.

(e). Structure of the Grāmas: We shall now try to ascertain the structure of these Grāmas from the scientific point of view. No explanation of these scales is to be found in Nāradîyā Shikshā. No mention of Shrutis and Samvādî and Anuvādî relationships is made in this work. To understand these scales we must turn to the famous work Bhāratîya Nātya Shāstra ascribed to sage Bharata, who is regarded as the greatest authority on everything connected with the ancient dramatic art of India. Some chapters of this work are devoted to the subject of music. The most important of these is the twenty-eighth chapter, which deals with the ancient Jāti system.

(f). Twenty-two Shrutis: For the purpose of explaining the structure of the Grāmas, Bharata divides the octave into twenty-two Shrutis. Controversy has sometimes been raised over the question whether the Shrutis were equal divisions or not. From the way in which Shrutis were taken freely from one interval and added to another one has to come to the irresistible conclusion that theoretically they were intended to be equal. But there is no evidence to show that in actual practice Indian musical instruments were ever equally tempered in twenty-two divisions in an octave. Stringed instruments, as described in musical works and also found in modern use, are provided with only eight to ten movable frets in an octave, which have to be shifted by the player in order to have chromatic notes. These instruments are never marked according to Shruti divisions and the player has to depend solely on his own musical ear for tuning these frets. Apart from the great practical difficulty of tempering an instrument equally, which

requires, as it does, high mathematical acumen and mechanical skill, the above-mentioned facts alone go to show that Shruti divisions were never meant for practical use. The only object which the originators of the Shruti schme appear to have had in view was to give an approximate idea about the comparative lengths of intervals between different notes of the scale.

(g). Samvādî, Anuvādî and Vivādî : These intervals have been put in Bhāratîya Nātya Shāstra, under three categories : Samvādî, Anuvādî and Vivādî. Great importance appears to have been attached by Bharata to the Samvādî relationship in the formation of the Grāmas. Two notes which had either nine or thirteen Shrutis between them were counted as Samvādî to each other. Two notes separated by twenty Shrutis were considered to be Vivādî to each other. All other relationships were counted as Anuvādî. In order to understand the significance of the aforesaid terms, we have to know how the Grāmas were expressed by means of the Shrutis. The intervals between consecutive notes of a scale contained either four or three or two Shrutis. The Shrutis placed between two notes were considered to belong to the upper note. In the Shadja Grāma the notes Sa, Ma and Pa had four Shrutis, Ri and Dha had three and Ga and Ni had two each. The allocation of Shrutis in this scale may be shown thus :—

Shadja Grāma :

S R G M P D N S^1
3 2 4 4 3 2 4

In the Madhyama Grāma, which started with Ma, the notes Pa and Dha had three and four Shrutis respectively. In other words, Pa of Madhyama Grāma was lower than that of Shadja Grāma by one Shruti. The two Grāmas, thus, differed from each other by a single Shruti. The Madhyama Grāma would, therefore, stand thus :—

Madhyama Grāma :

M P D N S R G M
3 4 2 4 3 2 4

It will be observed that the note Ma of the Shadja Grāma is separated from Sa by nine Shrutis. These two notes are, therefore, Samvādî to each other. The note Pa of that Grāma is separated from Sa by thirteen Shrutis. These two notes are, therefore, also Samvādî to each other. The note Ma is the Fourth and the note Pa is the Fifth above Sa and they are said to be Samvādî to it. This word is exactly analogous to the word "consonant" (*Sam*=con, and *Vad*=sono). There is, therefore, no doubt that the word "Samvādî" is equivalent to the modern scientific term "consonant". This term was applied only to the Fourth and the Fifth. It, therefore, implied perfect consonance. The 'Vivādî' is likewise analogous to the word "dissonant", and is, therefore, equivalent to it. The third category called Anuvādî, consequently, included the imperfect consonances. Some vagueness and confusion has always existed regarding these relationships, as Bharata does not define them in terms of Shrutis. But, as true melody cannot exist without consonant Thirds and Sixths, it must be presumed that these intervals were felt to be the only real Anuvādî relationships by theorists and practical musicians possessing true musical instinct. This presumption is strengthened by the fact that the Madhyama Grāma, which is, as we shall show presently, equivalent to the European Diatonic Major Scale, was not a scale of Pythagorean intonation tuned by Fifths only. In order to demonstrate this fact let us place the notes of that Grāma thirteen Shrutis apart from each other, starting from Ga. We thus get the series :

G N M S
13 13 13

Here the chain of Perfect Fifths breaks, because the fifth note above Sa is not a Perfect Fifth, being only twelve Shrutis above it. This note Pa, which is the characteristic note of the Madhyama Grāma, is distinctly mentioned to be not Samvādî to Sa. The ancient verse, which contains this clear statement, is quoted thus in the Nātya Shāstra :

'संवादो मध्यम-ग्रामे पंचमस्यर्षभस्य च।
षड्जग्रामे च षड्जस्य संवादः पंचमस्य च॥"

"In the Madhyama Gramā Samvāda (consonance) exists between Panchama and Rishabha, and in the Shadja Grāma Samvāda exists between Shadja and Panchama".

Bh. N. 28, 24.

The implication is that in the Madhyama Grāma Panchama is not consonant to Shadja as it is in the Shadja Grāma. Starting from Pa we can get another chain of Perfect Fifths, thus :

P R D
13 13

This latter chain cannot be connected with the former except by means of a consonant Third. Pa is the Third between Ga and Ni, Ri is the Third between Ni and Ma, and Dha is the Third between Ma and Sa. Putting these Thirds in their proper places in the first series we get a series with the following Shruti intervals :

G P N R M D S
7 6 7 6 7 6

This chain is almost a replica of the Scale Heptad of Primary First Scale, in which Major and Minor Thirds are placed one above the other alternately. There is, therefore, no doubt that the seven-Shruti intervals in the above series represent Major Thirds and the six-Shruti intervals Minor Thirds. It, thus, appears that the aforesaid two chains of Perfect Fifths were connected with each other by means of the Imperfect Consonances of the Thirds, which were called Anuvādî. A true appreciation of the consonant Thirds must, therefore, be presupposed if we are to assume that the Scale was correctly tuned[5]. The other two Anuvādî relationships the Major and the Minor Sixths can be obtained by inverting the Thirds, *i.e.* to say, by placing their lower notes an octave higher. The

5. That Indian theorists and musicians had an instinctive appreciation of the importance not only of perfect but also of imperfect consonances in the field of music is proved by the facts that Ahobala in his Sangîta Pārîjāta, Hridaya Nārāyana in his Hridaya Prakāsha and Srinivāsa in his Rāga Tatwa Vibodha have fixed the positions of the Octave, the Fourth, the Fifth and the Minor Third on the Veena, which are quite

Shruti number of the Major Sixth would be sixteen $(22-6=16)$ and that of the Minor Sixth fifteen $(22-7=15)$

The difference between Perfect Fifth and Perfect Fourth is Major Tone. $(\frac{3}{2} \div \frac{4}{3} = \frac{9}{8})$. Therefore, Major Tone would be represented by four Shrutis $(13-9=4)$. The difference between Major Third and Major Tone is Minor Tone $(\frac{5}{4} \div \frac{9}{8} = \frac{10}{9})$. So it would be represented by three Shrutis $(7-4=3)$. Semitone is the difference between Minor Third and Major Tone $(\frac{6}{5} \div \frac{9}{8} \div \frac{16}{15})$. It would be represented by two Shrutis $(6-4=2)$. The Shruti numbers of all the above-mentioned intervals are shown below in the order of their lengths :—

Intervals	*Shrutis*	*Intervals*	*Shrutis*
Major Sixth	16	Minor Third	6
Minor Sixth	15	Major Tone	4
Fifth	13	Minor Tone	3
Fourth	9	Semitone	2
Major Third	7		

correct scientifically. We find the following passages in in Sangīta Pārijāta :

"ध्वन्यवच्छिन्नवीणायां मध्ये तारक-सः स्थितः।
उभयोः षड्जयोर्मध्ये मध्यमं स्वरमाचरेत् ॥
त्रिभागात्मकवीणायां पंचमः स्यात् तदग्रिमे।
* * * * * *
षड्ज-पंचमयोर्मध्ये गान्धारस्य स्थितिर्भवेत् ॥"

Just in the middle of the Veena, *i.e.* to say, its wire, which is set apart or tuned to produce the sound (of Sa) is the Tāra Sa. The ratio of the lengths of the wires for these notes is 2 : 1. The ratio of the vibration numbers of these notes is, therefore, 1 : 2. Ma is to be placed at the middle of the wire between Sa and its octave. The ratio of wire lengths of Sa and Ma is thus 4 : 3 and the ratio of their vibration-numbers is 3 : 4. The whole wire being divided into three equal parts Pa is to be placed at the end of the first part. This gives the ratio of wire-lengths 3 : 2 and that of the vibration-numbers 2 : 3. Ga is to be placed at the middle of the wire between Sa and Pa. This gives the ratio of wire-lengths 6 : 5 and that of vibration-numbers 5 : 6. It will thus be seen that Ga which was five Shrutis above Sa was a just Minor Third to it. The interval of eight Shrutis between Ga and Pa, therefore, represented a just Major Third.

(h). Vādî and Amsa : Vādî and other terms are thus defined by Bharata :—

"वदनाद् वादी, संवदनात् संवादी, विवदनाद्
विवाद्यनुवदनादनुवादीति ।"

"Vādî is so called because it speaks (*i.e.* sounds first and most often). Samvādî, is that which speaks together with vādî (*i.e.* to say, in harmony with Vādî), Vivādî is that which speaks against (Vādî) ; and Anuvādî is that which speaks after (Vādî)."

From these definitions it is evident that Vādî was the principal note and Samvādî and Anuvādî were notes subservient to and intimately connected with it. It thus appears that Vādî owed its position of importance in the Scale on account of its ministration by those notes.

About Vādî Bharata further states :—

"तत्र, यो यत्रांशः स तत्र वादी ।"

"That note, which is (taken as) the Amsa in a certain place, is the Vādî there".

This statement implies that there were more than one note in a scale, any one of which might be taken as the Amsa in a particular melodic composition. We, accordingly, find in Bharata's description of Jātis that each of them is provided with more than one Amsa. Though no clear statement is made anywhere regarding the conditions of fitness of a note to be treated as an Amsa, we can infer those conditions from the rules regarding the use of transilient scales. According to those rules a note could not be omitted from a Jāti melody if it was Samvādî to the Amsa of that melody.[6].

6. "षाट्स्वरी सप्तमे त्वंशे नेष्यते षड्जमध्यमा ।
संवादी-लोपाद् गान्धारस्तत्रैव न भविष्यति ॥
गान्धारी-रक्तगान्धारो-कैशिकानां तु पंचमम् ।
षाड्ज्यां चैव गान्धारमनंशं विद्धि षाडवे ॥
षड्जोदीच्यवत्याश्चैव धैवतांशे न षाडवम् ।
संवादी-लोपात् सप्तैताः षाट्स्वर्यं तु विवर्जिताः ॥"

Bh. N. 28. 66-68.

It appears from this that the criterion of an Amsa according to Bharata was the full complement of possible Samvādî notes in the scale. We have seen from a scientific analysis of scales that the criterion of an Amsa is the full complement of possible consonant notes, which are four in number, two perfectly and two imperfectly consonant, viz, Fifths and Thirds above and below it. According to the ancient Indian theorists possession of the two Perfect Consonances was a sufficient criterion for an Amsa, the Thirds having had to be supplied by the practical musician in accordance with the Shruti arrangement fixed for the scale. For the two Thirds the seven-Shruti and six-Shruti intervals served as good approximations.

(i). **Madhyama Grāma :** Following this ancient theory we can find out the Amsas of a Grāma from its Samvādî intervals. It will be found that in the Madhyama Grāma each of the three notes Ma, Ni and Ri has two notes, which are Samvādî to it one separated from it by nine Shrutis and the others by thirteen. These three notes are, therefore, the Amsas of the Grāma being the Uttara, Adhara and Madhya Amsas respectively of that Scale. The Scale is shown below with the ratios of the intervals between consecutive notes, the Amsas being marked by asterisks overhead :

Madhyama Grāma.

$$\overset{*}{M}\ \underset{\frac{10}{9}}{}\ P\ \underset{\frac{9}{8}}{}\ D\ \underset{\frac{16}{15}}{}\ \overset{*}{N}\ \underset{\frac{9}{8}}{}\ S\ \underset{\frac{10}{9}}{}\ \overset{*}{R}\ \underset{\frac{16}{15}}{}\ G\ \underset{\frac{9}{8}}{}\ M$$

This Scale is plagal in character as it starts with its Uttara Amsa Ma. If we substitute S for M and put the ratios of the

Of the seven cases mentioned in the above verses the first is not an instance of omission of Samvādî. Of the remaining six cases, Gāndhāra cannot be Amsa of the hexatonic form of Shadja-Madhyamā as the omissible note Ni is Samvādî to Ga, in the next three Jātis Pa cannot be Amsa if its Samvādî Ri is omitted, in Shādjî Ga cannot be Amsa if Ni is omitted and in the last-mentioned Jāti Dha cannot be Amsa if its Samvādî Ri is omitted in the hexatonic form.

other notes to Sa we get the following Mode in Just Notation.

*Sa	Rā̆	Ga	*Ma	Pa	*Da	Nŏ	Sa[1]
	10/9	5/4	4/3	3/2	5/3	16/9	2

This is the Fifth Mode of Primary First Scale or European Diatonic Major Scale. Though historically this Scale came later than Shadja Grāma, the oldest Indian Scale, we have dealt with it first, not only because it is a better Scale, but also because it is more correctly expressed by means of Shrutis.

(j). Shadja Grāma : If we start from Ni of Shadja Grāma, we get the following chain of Fifths :

N M S P
13 13 13

Sa and Ma are Amsas of this Scale, because each of them has two Samvādîs. If we now put the Thirds in this chain we get the following series of notes :

N R M D S G P
7 6 7 6 5 8

The Thirds are quite correct upto Sa. But the characters of the Thirds between Sa and Ga, and between Ga and Pa are doubtful. In order to have a correct Scale the lesser interval of five Shrutis must be taken to represent a Minor Third and the larger interval of eight Shrutis must represent a Major Third[7]. The Shruti scheme is incapable of representing these intervals of the Scale correctly. The Shruti intervals of the lower pentachord of the Scale stand thus :

S R G M P
3 2 4 4

If we put Ga one Shruti higher, we get :—

S R G M P
3 3 3 4

The interval between S and G, being six Shrutis now correctly represents a Minor Third and the seven-Shruti inter-

7. We have shown in the foot-note no. 5 that these intervals are in actual practice treated as just Thirds in tuning the Veena.

val between G and P represents a correct Major Third. But, the three-Shruti intervals become ambiguous. If a Minor Tone be subtracted from a Minor Third, we get an interval which has the ratio $\frac{27}{25}$ ($\frac{9}{5} \div \frac{10}{9}$). This interval, which we have called Major Semitone, has not been hitherto noticed by any theorist or scientist. It is, as we see above, represented by three Shrutis, the same number which represents a Minor Tone. This anomaly is due to the inadequacy of the cycle of twenty-two for correctly representing all musical intervals, as we have shown in the third chapter. The cycle of fifty-three is the cycle which is not only capable of expressing all musical intervals, but also provides a basis for an equally tempered scale for expressing music in almost just intonation. The Shadja Grāma would stand as follows in terms of divisions of this cycle called by us Anu-shrutis or nonatones :

Shadja Grāma:

*S	R	G	*M	P	D	N	S
8	6	8	9	8	5	9	

The Major Semitone is represented by six Anushrutis and the Minor Semitone by five[8]. In Just Notation the Scale should be written thus :—

*Sa	Rĕ	Go	*Ma	Pa	Da	Nŏ	Sa[1]
	$\frac{10}{9}$	$\frac{6}{5}$	$\frac{4}{3}$	$\frac{3}{2}$	$\frac{5}{3}$	$\frac{16}{9}$	2

It is the Fifth Mode of Primary Second Scale.

It will be observed that both of the ancient Scales were plagal in character, the first and the fourth notes being Amsas in them.

(k). Sādhārana and Kaishika Grāmas : We shall now deal with the other two Scales derived from these by the pro-

8. It will be observed that G and N are not Samvādî to each other as they are separated by thirty Anushrutis and not thirty-one. But, owing to defect of the Shruti system they appear as such being separated by thirteen Shrutis.

cess called Sādhārana Vidhi. This process is thus described by Bharata :

"साधारणं नामान्तरस्वरता । कस्मात्? द्वयोरन्तरे योऽर्थो भवति स साधारणः । * * द्वे साधारणे, स्वर-साधारणं जाति-साधारणं चेति । स्वर-साधारणं काकल्यन्तर-स्वरौ । तत्र, द्विश्रुतिप्रकर्षान्निषादवान् काकली-संज्ञो, निषादो न षड्जो द्वाभ्यामन्तर-स्वरत्वात् । साधारणत्वं प्रतिपद्यते ।

एवं गान्धारोऽप्यन्तर-संज्ञो, गान्धारो न मध्यमस्तयोरन्तरत्वात् ।"

"Sādhārana means intermediate of two notes. Why? (Because) a thing which lies between two others is Sādhārana (*i.e.*, common to both.)

There are two Sādhāranas : Svara Sādhārana and Jāti Sādhārana. Svara Sādhārana means the notes Kākali and Antara.

Of these Nishāda gets the name 'Kākalî' when it is increased by two Shrutis, Nishāda (is called by this name) and not Shadja, because it is the intermediate note. Commonness is (thus) shown.

Similarly, Gāndhāra also gets the name Antara and not Madhyama, because it is intermediate between the two (notes)".

Bh. N. 28.

Though the line of reasoning is rather archaic, we are left in no doubt about the implication. The note Nishāda becomes a four-Shruti note by taking two Shrutis from Shadja, and is called Kākalî Nishāda and not Kākalî Shadja. It is Common to Nishāda and Shadja, because it takes two Shrutis from each of them. Similarly, Gāndhāra taking two Shrutis from Madhyama, becomes Antara Gāndhāra and not Antara Madhyama. It is common (Sādhārana) to Gāndhāra and Madhyama as it takes two Shrutis from each of them.

It thus appears that Kākali Ni and Antara Ga were Ni and Ga sharpened by a Semitone of two Shrutis. Antara Ga was used as a real chromatic note in ascent, the natural Ga being used in descent, as will appear from the following passage :—

"अन्तर-स्वर-संयोगो नित्यमारोहिसंश्रयः ।
कार्यः स्वल्पविशेषेण नावरोही कदाचन ॥"

"Antara note must be always used in ascent, either sparingly or often but never in descent".

Bh. N. 28, 37.

Kakali Ni, on the other hand, was never used as a chromatic note. It had no use as an independent note. It had always to be used along with Antara Ga for a particular purpose. That purpose was to have "Svara Sādhārana" as stated in the passage of the twenty-eighth chapter quoted above. "Svara Sādhāranā" was applied to both the Grāmas as will be seen in the following passages :

"स्वर-साधारणं द्विविधं द्वैग्रामिक्यं। कस्मात्?
षड्ज-ग्रामे षड्ज-साधारणं, मध्यम-ग्रामे
मध्यम-साधारणम्। साधारणोऽत्र स्वर-
विशेष इति।"

"Sādhārana is of two kinds, applied to the two Grāmas. Shadja Sādhārana in the Shadja Grāma and Madhyama Sādhārana in the Madhyama Grāma. Sādhārana, here, means peculiarity of notes.

The peculiarity referred to is that of the two notes Antara and Kākalî.

Of the four Scales mentioned in the passages of the thirty-second chapter quoted above two are the original Grāmas and the other two their Sādhāranas (Sādhāranāshrayam). These two Sādhāranas are called Sādhārita and Kaishika. The word "Sādhārita" does not occur in the twenty-eighth chapter. The word "Kaishika" is mentioned in that chapter as an alternative name for Madhyama Sādhārana, as will be seen from the following passages :

"मध्यम-ग्रामेऽपि साधारणत्वम्। अस्य तु प्रयोग-सौक्ष्म्यात्
कैशिकमिति नाम निष्पद्यते।"

"The Sādhārana form exists also in the Madhyama Grāma. Its name "Kaishika" is derived from the fineness of its application."

The reference here is to the word "Kesha" (hair), an emblem of fineness, from which the word "Kaishika" is derived. Kaishika of the thirty-second chapter being equivalent to Madhyma Sādhārana, Sādhārita of that chapter must be equivalent to the other Sādhārana, i.e. Shadja Sādhārana. The word "Sādhārita" is the substantive from of the adjective word "Sādhārana-krita" (made Sādhārana) used elsewhere in the twenty-eighth chapter.

Taking A and K to represent Antara and Kākalî, the Shadja Grāma altered by the Sādhārana process would have the following Shruti intervals :

S R A M P D K S¹
3 4 2 4 3 4 2

If we start from Ri of this Scale, we get the following series of Fifths :—

R D A K
13 13 13

As D and A have each two Samvādî notes, they are the Amsas of the Scale. If we now put the intermediate Thirds in their proper places, we get the series :—

R M D S A P K
6 7 6 7 6 7

This chain in almost a replica of the Scale Heptad of Primary Fourth Scale, in which Major and Minor Thirds are placed one above the other alternately in the order reverse to that of the Primary First Scale. Sādhārita is, therefore, equivalent in its tonality to the Primary Fourth Scale. S, which has two Samvādîs is the Madhya Amsa, D and A, being the Adhara and Uttara Amsas respectively. If on the analogy of the ather two Scales we start from the Uttara Amsa, Antara Gāndhāra, the Scale with the Shruti-intervals between its consecutive notes will stand as follows :—

Sādhārita :

*A M P *D K S R A
2 4 3 4 2 3 4

If we now substitute Sa for A and put the ratios of the other notes to Sa, the Scale will stand thus in Just Notation :—

*Sa	Rŏ	Go	*Ma	Pa	Do	Nŏ	Sa[1]
	$\frac{16}{15}$	$\frac{6}{5}$	$\frac{4}{3}$	$\frac{3}{2}$	$\frac{8}{5}$	$\frac{16}{9}$	2

This is the Fifth Mode of Primary Fourth Scale.

Wrong use of this Scale has been made in the rock inscription, as Ma, which cannot be an Amsa of the Scale, has been used as the Nyāsa.

The Madhyama Grāma altered by the Sādhārana process, had the following Shruti intervals :—

M	P	D	K	S	R	A	M
	3	4	4	2	3	4	2

If we start from Pa of this Scale, we get the following chain of four Fifths :—

P	R	D	A
	13	13	13

R and D are the Amsas of this Scale, as each of them has two Samvādîs. Putting the intermediate Thirds in their proper places in this chain we get :—

P	K	R	M	D	S	A
	8	5	6	7	6	7

In order to have a Scale of correct tonality the eight-Shruti and five-Shruti intervals of this Scale must be taken to represent a Major and a Minor Third respectively, as in the case of the Shadja Grāma, both of these Scales containing a Major Semitone. If on the analogy of the three other Scales, we start from the Uttara Amsa D, we get the following Shruti-intervals of the Scale which is called Kaishika in the Nātya-Shāstra :—

Kaishika of Nātya Shāstra :

*D	K	S	*R	A	M	P	D
	4	2	3	4	2	3	4

Correctly represented by Anushrutis this Scale will stand thus :—

*D	K	S	*R	A	M	P	D
	8	6	8	9	5	8	9

If Sa is taken as the starting note, the Scale will appear as follows in Just Notation :—

*Sa	Rĕ	Go	*Ma	Pa	Do	Nŏ	Sa[1]
	$\frac{10}{9}$	$\frac{6}{5}$	$\frac{4}{3}$	$\frac{3}{2}$	$\frac{8}{5}$	$\frac{16}{9}$	2

This is the Fifth Mode of Primary Third Scale. It is called Kaishika Madhyama in the Shikshā and the rock inscription. It has been wrongly used in the rock inscription, as S and M are treated in it as its two most prominent notes instead of D and R.

(1). **Four Grāmas equivalent to four Primary Scales :** The four Scales including the original Shadja and Madhyama Grāmas and Sādhārita and Kaishika derived from them by the Sādhārana process are shown below :—

The four ancient Scales of Nātya Shāstra.

1. **Madhyama Grāma**— *M P D *N S R G M
   3 4 2 4 3 2 4
   —Prim. I, 5.

2. **Shadja Grāma** — *S R G *M P D N S
   3 2 4 4 3 2 4
   —Prim. II 5.

3. **Kaishika (Dhaivata Grāma)** — *D K S *R A M P D
   4 2 3 4 2 3 4
   —Prim. III, 5.

4. **Sādhārita (Gāndhāra Grāma)** — *A M P *D K S R A
   2 4 3 4 2 3 4
   —Prim. IV, 5.

On the analogy of the two original Scales the two derivative Scales have been shown in their plagal forms *i.e.*, to say, with their Uttara Amsas as the starting notes. On the analogy of the same Scales the third and the fourth Scales should be called after their starting notes Dhaivata Grāma and Gāndhāra Grāma respectively. Sādhārita appears to have been actually called Gāndhāra Grāma, when it was originally borrowed from the Gandharvas. The name was subsequently abandoned when it

came to be regarded as a derivative of the Shadja Grāma. This accounts for the popular notion that Gāndhāra Grāma exists in heaven only and not on the earth. One of the reasons for the discontinuance of the name seems to be the inconvenience in using it, because the starting note of the Scale was Antara-Gāndhāra and not Gāndhāra. Neither the Shikshā nor the Nātya Shāstra, which mentions it only once in the chapter named "Pushkara-vādya", give any definition of Gāndhāra Grāma. That the tonality of this Grāma was the same as that given above will be shown from its definitions, to be explained below, found in two later works : Sangîtā Makaranda ascribed to Nārada and Rāga Manjarî written by the medieval theorist Vitthala.

Kaishika does not appear to have been ever called Dhaivata Grāma by which name it should have been properly called. But, there is no doubt that it has always been used in some form or other, though perhaps less often than the other three Scales. We shall see at the close of this chapter that the Scale of Srî Rāga as described by Kallinātha, the famous commentator of Sangîta Ratnākara, was the Dhaivata Grāma in Sa-initial authentic form.

The above-mentioned four were the only true Grāmas in the sense of Scales with distinct tonality in ancient India and these are, as we have shown above, identical with the four Primary Scales. The other three modes mentioned in the Shikshā and the rock inscription, which were subsequently created and sometimes miscalled "Grāmas", were in reality only different forms of some of the aforesaid four true Grāmas. We shall see below that other forms of these ancient Scales came into vogue at different periods before the whole system of Grāmas was given up with the introduction of Melas.

(m). Shādava and Panchama Grāmas : The two modes, which were added to the four ancient Scales making up the so-called "Shad-Grāma", which, subsequently called "Shad Grāma Rāga", led to the conception of "Shad Rāga" (six Rāgas), were obtained by substituting the ancient chromatic note Antara

Gandhāra for the original Gāndhāra of the two original Scales. These two modes are mentioned as Shādava and Panchama in the Shikshā and the rock inscription. Both of these modes are found to contain the Antara Gāndhāra, which is indicated in the inscription by the syllable "अ" (A), the Kākalî Nishāda of the two Sādhārana Grāmas being indicated by the syllable "क" (Ka). There is no mention in the Shikshā of the name of the particular Grāma from which each of these modes was derived. The Shruti-intervals of the Shadja Grāma would stand as follows if the Gāndhāra is altered to Antara :—

*S	R	A	*M	P	D	N	S
3	4	2	4	3	2	4	

This is Madhyama Grāma with S as the starting note instead of M. Shādava mode must be identified with this form of the Madhyama Grāma, as S and M are found in the rock incription to be its most prominent notes.

The Shruti-intervals of Madhyama Grāma with Antara substituted for Gāndhāra would stand thus :

*M	P	*D	N	S	*R	A	M
3	4	2	4	3	4	2	

This is Sādhārita with D and R as its Uttara and Adhara Amsas and M as the Madhya Amsa. Panchama mode of the rock inscription cannot be identified with this Scale, as S and P are used as its principal notes or Amsas. The notes R and P of this Scale must be raised by one Shruti in order to have a correct Scale with which Panchama mode can be identified. If we make Panchama (=fifth), the real fifth note of this Scale, we get :—

*S	R	A	M	*P	D	N	S
4	3	2	4	3	2	4	

It is the authentic form of the Shadja Grāma, with its Adhara Amsa as the starting note. In order, however, to identify Panchama mode of the inscription with this Scale we must assume that the rules regarding the distinction of three-Shruti and four-Shruti (Minor and Major Tones) was not

observed at this period of Indian music and that Scales were differentiated by their Amsas and the positions of the two-Shruti intervals (Semitones). This assumption becomes inevitable when we take into consideration the manner in which the five modes other than Shadja Grāma and Shādava are used in the compositions of the inscription.

(n). Kaishika of Kāshyapa: Kaishika, the seventh mode of the Shikshā, is quite different in its tonality from Kaishika of the Nātya Shāstra explained above. Madhyama Sādhārana is called by that name in the Nātya Shāstra. But, in the Shikshā it is called Kaishika Madhyama. We have seen above that Kāshyapa created a new Scale with the same notes by fixing Panchama as the Nyāsa (concluding note) instead of Madhyama. The Nyāsa note P and another note S were the most prominent notes or Amsas of this Scale, as we find from their use in the rock inscription. In creating the new Scale Kāshyapa clearly violated the rules of Shruti. In order to have S and P as the Amsas the notes R and P of Madhyama Sādhārana must be raised by one Shruti. If "Panchama" which is used as Nyāsa, is to be made the real fifth note of this Scale it must start with S. The Scale will then be Madhyama Grāma in its authentic form :

Sa-initial Authentic form of Madhyama Grāma.

*S	R	G	M	*P	D	N	S
4	3	2	4	3	4	2	

This is identical with the First Mode of Primary First Scale. Kāshyapa's Kaishika must be identified with this Scale.

The only valuable and intelligible information regarding the melodic use of the seven Grāmas found in Nāradiyā Shikshā is that each of these Scales possessed a central note called Rāga Swara which was to be used as the concluding note (Nyāsa) of a melody based on it. An examination of the compositions for instrumental music given in the Kudimiyāmālai rock inscription, shows that each piece in it is divided into four to seven sections. Each section contains sixteen phrases of four

notes. These phrases are called "Chatushprahāra Svarāgama" (notes for four strokes), intended for stringed instruments played by striking the wires by a plectrum. Every phrase of a particular section concludes with the same note. All the sixteen phrases of the first sections of all the seven compositions end with Sa. This shows that Sa was regarded as one of the principal notes, *i.e.*, Amsa of all the seven Scales. The other noticeable feature of these compositions is that all the phrases of the last sections of the compositions of five of the Grāmas conclude with Ma and those of the remaining two end with Pa. It, thus, appears that Sa and Ma were the principal notes or Amsas of five of the Scales and Sa and Pa were the Amsas of the remaining two. We have seen that according to the tonality of the aforesaid Scales as determined by their Shruti-allocations the only two Scales which have both Sa and Ma as their Amsas are Shadja and Shādava Grāmas. Of the other five only Madhyama Grāma has Ma for its Uttara Amsa. None of the other Scales has either Sa or Ma as the Adhara or the Uttara Amsa. The use of Sa and Ma as the Amsas of some of these Scales is, therefore, a violation of the rules of Shruti. It appears that at some period of Indian music it had become the universal custom to use Ma as the concluding note (Nyāsa) of all melodies. The use of Pa as Nyāsa of melodies in Kaishika and Panchama Grāmas was evidently a bold departure from this custom at some later period. How are we to account for this custom ?

(o). **Vedic sanctity of Madhyama : Sa-Ma-Tonic forms of Grāmas :** We have seen in the fourth chapter that the bicentric character of Scales came to be recognised in Indian music since the earliest times. In a passage quoted in that chapter Shārngadeva characterises Sa and Ma as the two most important notes in the Scale ; the first, because it is the starting note and has a large number of Amātyas, i.e., Samvādîs and the second, because it is unomissible. This non-omissibility of the note Madyama is, as we have seen, accountable to its identity with the starting note of the Sāma-Vedic descending tetrachord, from which the earliest secular Scale, Shadja Grāma, was deve-

loped. This Vedic tradition about Madhyama was so persistent in the popular mind that in the later Jāti period it was considered unomissible even in the Jātis in which it was not an Amsa. Bharata says in the Nātya Shāstra :—

"न मध्यमस्य नाशस्तु कर्तव्यो हि कदाचन ।
सप्तस्वराणां प्रवरो ह्यनाशी चैव मध्यमः ॥"

"Madhyama should never be omitted. It is the foremost of the seven notes and unomissible"

Bh. N., 28.

It would appear from the above passage that in ancient times Madhyama was considered to be the most important note in the Scale. As such it was placed in the most prominent position in a melodic composition—its conclusion. The æsthetic effect of the Nyāsa was appreciated, however faintly, so early as the time of the Shikshā. The use of Madhyama as Nyāsa in the compositions in Shadja and Madhyama Grāmas was quite correct scientifically, as it is an Amsa of these Scales. But, the significance of Nyāsa was lost when Madhyama was used as Nyāsa in those later Scales in which it was not an Amsa. A sort of superstitious sanctity attached to the name was responsible for such wrong use of the note as we find in the rock-inscription. Subsequently, a reform appears to have been made in order to prevent this wrong use by putting the Scales in such forms that their Madhyama would be not only the real "Madhyama" or midnote but also the Adhara Amsa. For this purpose each Scale had to be made to begin with Shadja like the Shadja Grāma. As all ancient Scales, being plagal in character, started with the Uttara Amsa, Madhyama the fourth note in this Sa-initial form of the Scale would become the Adhara Amsa, which could be used correctly as the Nyāsa.

Such transformation of the Madhyama Grāma could be easily made by using Antara Gāndhāra in Shadja Grāma, i.e. to say, by raising Gāndhāra by two Shrutis. This process of conversion has been mentioned by Bharata in the Nātya Shāstra. Two different processes for transformation of Gāndhāra Grāma to Sa-initial forms are found in two works of

different periods. One of them is the Sangîta Makaranda ascribed to Nārada and the other is Rāga Manjarî of Vitthala.

Conversion of Shadja Grāma to Madhyama Grāma is thus described by Bharata :—

"तत्र, द्विश्रुति-प्रकर्षाद् धैवतीकृते गांन्धारे मूर्छना
ग्रामयोरन्यत्र, षड्जग्रामे ।"

"A Murchhanā of Shadja Grāma becomes a Murchhanā of the other of the two Grāmas (i.e. Madhyama Grāma) if Gāndhāra is made Dhaivata by adding two Shrutis to it".

By this process Gāndhāra became a four-Shruti note. As a chromatic note it is called Antara. In the above passage its name is converted to Dhaivata in order to have a Murchhanā of Madhyama Grāma at a different part of the Veenā as, we shall see in the next chapter. Bharata must have been aware of the fact that if the name of Antara Gāndhāra, which was frequently used as a chromatic note, was not altered to Dhaivata we would have a different form of Madhyama Grāma with Sa as the starting note instead of Ma. We find the use of this form of Madhyama Grāma in Shādava Grāma of the rock inscription in which Sa and Ma are used as its Amsas.

(p). Gāndhāra Grāma in Sangîta Makaranda and Rāga Manjarî : Transformation of Gāndhāra Grāma into Sa-initial form is found in the following definition of that Grāma given in Sangîta Makaranda, a later work ascribed to Nārada :—

"रिमयोः श्रुतिरेकैका गान्धारस्य समाश्रया ।
धैवत-श्रुतिरेका च निषाद-श्रुति-संश्रया ॥
गान्धार-ग्राममाचष्टे तदा तं नारदो मुनिः ।
प्रवर्तते खगंलोके ग्रामोऽसौ न महीतले ॥" 9

9. We have substitued the word "धैवत" for the word 'पंचम" in the second line as found in the printed edition of Gaekwad's Oriental Series No. XVI, because it is impossible for Nishāda to take a Shruti from Panchama. It must be a copyist's mistake in the manuscript, owing to similarity of the two words. We have also substituted "नारदो मुनिः" for नारदोऽब्रवीत् in the third line

"If one Shruti is taken from each of the notes Ri and and Ma and added to the Shrutis of Gāndhāra and one Shruti of Dhaivata is added to the Shrutis of Nishāda, then the Grāma so formed is called Gāndhāra Grāma by Muni Nārada. This Grāma is used in heaven and not on earth."

Sangîta Makaranda.

If these alterations are made in the Shadja Grāma which was the ancient Scale of Origin, we get the following Shruti-intervals between the consecutive notes :—

*S	R	G	*M	P	D	N	S¹
2	4	3	4	2	3	4	

Vitthala, a medieval theorist of the Southern School of Indian music, gives in his Rāga Manjarî a definition of Gāndhāra Grāma, which he attributes to Yāstika, a famous theorist of the early Rāga period. The verse runs as follows :—

"गन्योः स्थाने रिधौ यत्र लघुषड्जपयोर्निमौ ।
गान्धारो मध्यम-स्थाने गग्रामो याष्टिके मतः ॥"

"Where Ri and Dha are put in the positions of Ga and Ni ; Ni and Ma in those of Laghu Sa and Laghu

and "प्रवर्तते" for "प्रवर्तकः" in the fourth line in the light of similar verses found in Shārngadeva's Sangîta Ratnākara, which were evidently taken from Sangîta Makaranda. These are the verses :

"रिमयो श्रुतिमेकैकां गान्धारश्चेत् समाश्रितः ।
पश्रुतिं धो निषादस्तु धश्रुतिं सश्रुतिं श्रितः ॥
गान्धार-ग्राममाचष्टे तदा तं नारदो मुनिः ।
प्रवर्तते स्वर्गलोके ग्रामोऽसौ न महीतले ॥"

S. R, 1, 4, 0-5

It will be observed that except the second line these verses are almost indentical with those of Sangîta Makaranda, which must be the source of Shārngadeva's verses. Evidently, he borrowed it from a similar wrong manuscript in which the word "पंचम" was put in the second line. Failing to make out any sense, he appears to have changed the whole line and put in new words in order to give a sensible meaning to the line. By doing this he created a Scale which admits of no rational explanation. The Shruti-intervals of this Scale are 2. 4. 3. 3. 3. 4. 3.

Pa and Ga in the position of Ma, it is Ga grāma according to Yāstika".

Rāga Manjarî, 40.

In Vitthala's scheme of notes, Laghu Sa and Pa are notes one Shruti lower than the original notes. They are, therefore, three-Shruti notes. With these notes the Scale of Origin stands thus :—

S R G M P D N S¹
4 2 4 3 4 2 3

In the above passage the positions of Sa and Pa are not mentioned. They must be put in the positions of Ri and Dha, the only two remaining notes. By substituting these notes for those of the above Scale and starting from Sa, we get :—

*S R G *M P D N S¹
2 4 3 4 2 3 4

The Gāndhāra Grāma, as defined above by Yāstike, will be found to be identical with that defined by Nārada in Sangîta Makaranda.

(q). The three ancient Grāmas in Sa-Ma-Tonic Plagal forms : Shruti-allocations of the Sa-Ma-Tonic Plagal forms of the three ancient Scales are shown below :—

Sa-Ma-Tonic Plagal forms.

Shadja Grāma	*S R G *M P D N S¹ 3 2 4 4 3 2 4
Madhyama Grāma	*S R A *M P D N S¹ 3 4 2 4 3 2 4
Gāndhāra Grāma	*S R G *M P D N S¹ 2 4 3 4 2 3 4

It will be observed that Gāndhāra Grāma contains four peculiar notes viz., two-Shruti Ri, three-Shruti Ma, two-Shruti Dha and three-Shruti Ni. No special chromatic names appear to have ever been given to these notes. Use of this Scale must, therefore, have always been very difficult for musicians. Notwithstanding this difficulty this and the other two Scales served

very well the purpose for which they were created, viz, making Madhyama the true mid-note of the Scale and an Amsa, so that it might be used as the concluding note with perfect aesthetic effect. We, consequently, find these Scales used even in the Jāti period. The three Udîchyabā Jātis, viz., the Shadjodî-chyabā, the Madhyamodîchyabā and Gāndhārodîchyabā must have been based on these Scales. The names of these Jātis indicate that they were based on the three ancient Grāmas in forms, which had the same notes as the Amsas, as will appear from the fact that all of them had Ma as their Nyāsa (concluding note) according to traditional ancient practice.

(r). Important reform : Panchama brought to prominence : A further stage of development in Indian melody was reached, when it was discovered that the rule of using the single note Madhyama as the concluding note of all melodies was an unnecessary handicap and that other notes of the Scale could be used for that purpose, maintaining the traditional sacredness of Madhyama by only treating it as unomissible. The first breach of the rule was made in Panchama Grāma, in which Pa was made the Nyāsa, instead of Ma. The second breach is found in Kāshyapa's Kaishika Grāma. A very important reform in musical ideology was made by making the two ancient grāmas "authentic" in form, by starting from the Adhara Amsa. the orininal Grāmas being, as we have seen, "plagal" in form, having the Uttra Amsas as their starting notes. The plagal form of all ancient Scales is, as we have shown, traceable to their tetrachordal origin. The authentic form brings to prominence the constituent pentachord of a Scale by placing it at the beginning. These forms, therefore, mark an advanced stage in the developement of musical ideas.

Of the three ancient Scales Shadja Grāma has undergone only one transformation in its Sa-initial authentic form represented by Panchama Grāma of the Shikshā. Each of the other two Scales have undergone two transformations. The first transformation of Madhyama Grāma is found in its Sa-initial plagal form, represented by Shādava Grāma of the Shikshā and

the second in its Sa-initial authentic form represented by Kāshyapa's Kaishika Grāma. The Madhyama Grāma attained its greatest popularity in this latter form. The first transformation of Gāndhāra Grāma is seen in its Sa-initial plagal form described by Nārada and Yāstika ; and the second in its Ri-initial plagal form explained below. The Sa-initial plagal form of Gāndhāra Grāma was obtained by a process, which was rather complicated and difficult to remember. A plagal form which is obtainable by a process easier and more convenient for recollection appears to have been felt necessary. This want was supplied by the Ri-initial plagal form of the Scale. This form was obtained by lowering Sa and Pa of the Shadja Grāma by one Shruti and starting from Ri. This was the first of the two steps in the process adopted by Yāstika explained above. This form can be obtained also by lowering only Sa of the Madhyama Grāma by one Shruti. Gāndhāra Grāma was used in this form in the Jāti period. It is shown below :—

Ri-initial Plagal Form of Gāndhārā Grāma.

*R	G	M	*P	D	N	S	R
2	4	3	4	2	3	4	

B. Mārjanās.

In the thirty-fifth[10] chapter of the Nātya Shāstra named "Pushkara Vādya" (Playing on drums), we find a description of three "Mārjanās" or methods of tuning drums for the three ancient Grāmas. Playing on drums in accompaniment to music is an ancient Indian practice. This art attained a very advanced state of development in ancient India. In modern India two drums are used. These are, either two separate small drums placed vertically (called Tabla and Bāyān in Hindusthāni music) ; or the two ends of a single large drum placed horizontally (called Mridanga or Pākhwāj), and played by both hands. In ancient India three drums were played together, probably one by the left hand and the other two alternately by the right

10. In the Kāvyamālā edition the chapter is numbered thirty-five ; but, in Kāshî edition it is numbered thirty-one.

hand. These were called *pushkaras.* It seems that two of the drums were the two ends of a large drum like the modern Mridanga, and placed horizontally like it and the third was a small drum like the modern *Tabla* and placed erect probably on the lap of the player and called "Ālingya". The three drums were tuned to three different notes of a Scale. There were three methods of tuning these drums. These methods were named as follows :—

"मायूरी ह्यर्ध-मायूरी तथा कर्मारवी पुनः।
तिस्रस्तु मार्जना ज्ञेया पुष्करेषु स्वराश्रयाः॥"

"There are three Mārjanās in Pushkaras based on (different) notes, which are called Māyurî, Ardha Māyurî and Karmāravî"

The Scales on which these three kinds of tuning were based are stated as follows.;

"मायूरी मध्यम-ग्रामे षड्जे त्वर्धा तथैव च।
कर्मारवी तु गान्धारे साधारण समाश्रया॥"

"Māyurî is in Madhyama Grāmā, Ardhā in Shadja (Grāma) and Karmāravî in Gāndhāra (Grāma) based on Sādhārana".

The notes to which the drums were tuned are thus characterized :—

"स्वरा ये स्थायिनो यान्ति श्रुतिसाधारणाश्रयाः।
त एवं मार्जनकृताः शेषा संचारिणः स्मृताः॥" 11

"The notes, which, being based on Shruti Sādhārana, can be sustained, are thus used in tuning. The remaining notes (of the Scale) are variable".

What the word "Shruti Sādhārana" exactly means is not clear. It, however, appears from the context that the notes, to which the three drums were tuned, were distinguished from the other notes of the Scale and were capable of being sustained

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11. This verse is taken from the Kashi Sanskrit Series edition (1929) of the Nātya Shāstra. We have substituted "कृताः" for 'कृत्वा", which is inappropriate in the context.

throughout a melodic composition, like the pedal notes of European harmonic music. The clear inference from this is that these notes were analogous to the Tonic and the Dominant of European music, which were used as pedal notes. In fact, these notes were the Amsas of the Grāma on which the tuning was based, as we shall see presently.

(1). Myurî Mārjanā : The notes to which the three drums were tuned in Māyurî Mārjanā were as follows :—

"गान्धारो वामके कार्यः षड्जो दक्षिण-पुष्करे।
ऊर्ध्वके पंचमश्चैव मायूर्या त स्वरा मताः॥"

"Gandhāra is to be on the left (pushkara), Shadja on the right pushkara and Panchama is to be on the upper (Pushkara). These are the notes of Māyurî".

The notes Shadja and Panchama are the Amsas of Kāshyapa's Kaishika, which is, as we have seen, the Sa-initial authentic form of Madhyama Grāma and identical with the First Mode of Primary First Scale. That Māyurî held the foremost place among Mārjanās is evident from the fact that it is given the first position in the above passages. Primary First Scale, thus, came to hold its legitimate position of pre-eminence at this early period of Indian music. It is also remarkable that the Third between the Adhara and the Uttara Amsas came to be recognised as a third Amsa of a Scale.

(2). Ardha Māyurî Mārjanā : In the Ardha Māyurî Mārjanā the drums were tuned to the notes given in the following verse :

"वामके पुष्करे षड्ज मध्यमो दक्षिणे तथा।
धैवतश्चोर्ध्वगे कार्यः अर्धमायूरकाश्रयाः॥" 12

12. This verse is taken from the Kāshî edition of the Nātya Shāstra, which appears to be more correct than the corresponding verse of the Kāvyamālā edition. We have substituted the word **मध्यमो** for the word **ऋषभो** which is clearly a misreading, as Madhyama has been recognised as an Amsa of Shadja Grāma since the earliest times.

"Shadja is to be on the left Pushkara, Madhyama on the right and Dhaivata on the upper Pushkara in Ardha Māyurî Mārjanā".

Dattila states that Dhaivata is an unomissible note in Shadja Grāma[13]. It is the Third between the Amsas Ma and Sa. It is, therefore, the Madhya Amsa of the Shadja Grāma.

(3). Karmāravî Mārjanā: The notes of Karmāravî Mārjanā are stated to be as follows:

"ऋषभः पुष्करे वामे षड्जो दक्षिण-पुष्करे।
पंचमश्चोर्ध्वगे कार्यः कर्मारव्या स्वराश्रयाः॥
एतेषामनुवादी तु जाति-राग-स्वरान्वितः।
आलिंगे मार्जनं प्राप्य निषादस्तु विधीयते॥" 14

"The notes on which Karmāravî is based are Rishabha on the left pushkara, Shadja on the right Pushkara and Panchama on the upper.
Nishādha, which is Anuvādî to these notes and related to the Rāga Swara of the Jati, is to be used in the Mārjanā of the Ālinga".

The second verse is very significant, inasmuch as, it is the only place, so far as we have been able to ascertain, where the important position which Anuvādî relationships held in ancient Indian music is clearly brought to light. Here we find that the note which was Anuvādî to the Adhara and Uttara Amsas of a Scale was also counted as an Amsa, and deserved a place in one of the accompanying drums. The word "Jāti" in this verse refers to the Karmāravî Jāti, from which the Mārjanā derived its name; and the word "Rāga-Swara" refers to the Amsas of that Jāti. The Amsas of this Jāti, as we find from the Nātya Shāstra, were Rishabha and Panchama. The note Nishāda is related (*anvita*) to both of them as Anuvādî. It is the Third between them and is, therefore, to be considered as an Amsa.

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13. पंचमं मध्यम-ग्रामे षड्ज-ग्रामे तु धैवतम्।
अनाशिनं विजानीयात् सर्वत्रैव तु मध्यमम्॥"

Dattila, 20.

14. These verses are taken from the Kāshî edition of the Nātya Shāstra.

As the Madhya Amsa of the Scale it had to be placed in the drum called Ālinga. That Ri, Pa and Ni were considered as Amsas of the Scale on which this Mārjanā is based, is further proved by the fact that these notes were also the Amsas of Panchamî Jāti, the note Ni being used in it as the Apanyāsa and Pa as the Nyāsa. The use of Shadja in one of the drums as mentioned in the first verse evidently refers to a wrong older practice, which was sought to be corrected by the substitution of Ni mentioned in the second verse.

The three notes of each of the above-mentioned Mārjanās correspond to the notes of the Tonic chord of European harmonic music, which includes the Tonic, the Dominant and the Mediant corresponding to the Adhara, the Uttara and the Madhya Amsas respectively. Continuous sounding of the three drums almost simultaneously was, therefore, tantamount to continuous sounding of the Tonic chord with the music which the drums accompanied. This harmonic use of the drums continues till the present day, though the drum for the Mediant has been discarded. The ancient methods of tuning drums explained above bespeak a remarkable sense of tonality which can be profitably cultivated even by modern musicians[15].

The forms of the three ancient Grāmas, on which the aforesaid three Mārjanās were based, are shown below with their Amsas and correct Shruti-allocations :—

Forms of the Grāmas

used in the Mārjanās.

Madhyama Grāma	*S R G M P D N S 4 3 2 4 3 4 2	...-**Mayurî.**
Shadja Grāma	*S R G *M P *D N S 3 2 4 4 3 2 4	...-**Ardha Mayurî.**
Gāndhāra Grāma	*R G M *P D *N S R 2 4 3 4 2 3 4	...-**Karmāravî.**

15. The prevalent custom among modern musicians of India is to always tune the Tabla to Sa, the starting note of the Scale, even where it is not Amsa. Least attention is usually

C. JĀTI.

A description of the Jāti system is given at the end of the twenty-eighth chapter of Bhāratîya Nātya Shāstra. It will be found to be full of inconsistencies and mistakes when examined in the light of the principles laid down as the basis of the system. It would appear from this that the description embodies the system in its last stage of decay. Fortunately, however, the principles, on which the system is based, are stated in terms clear enough and by making necessary corrections and modifications in the light of these principles we can have a fairly correct idea of the original system. The greatest difficulty arises from the fact that all the Jātis are put under one or the other of the two ancient Scales in their original forms, though a cursary view will show that many of the Jātis, cannot be based on these Scales either in their original or any other recognised forms. Another great difficulty lies in the fact that some of the Jātis are provided with more and others with less than three Amsas, only three out of eighteen Jātis being given three Amsas. In one of the Jātis all the seven notes of the Scale, including the two omissible notes, are mentioned as Amsas.

(a). The ten characteristic features : A general idea about Jātis can be had from its ten features stated below :—

"दश-विधं जातिलक्षणम् ।
ग्रहांशौ तार-मन्द्रौ च न्यासोऽपन्यास एव च ।
अल्पत्वं च बहुत्वं च षाडवौडुविते तथा ॥"

"Features of Jātis are of ten kinds : Graha, Amsa, Tāra, Mandra, Nyāsa, Apanyāsa, Alpatva (sparseness), Bahutva (frequency), Shādava, and Auduva".

Grahā is defined as the Amsa that is placed at the beginning. It has, therefore, no existence separate from the Amsa, being

paid to tuning of the Bāyān. These unscientific practices can be accounted for by either indifference, or, in most cases, ignorance of the Amsas of the Scale on which a composition is based.

only one of its functional names. Amsa, was considered to be the most important note in a Jāti. We, however, find in the description of Jātis that most of them possessed more than one Amsa. It was, therefore, a generic name applied to these notes, each of which could be used as the most prominent note. When used in this special function in a particular melody it was called the "Vādî"[16]. So, it appears that one of the Amsas was made to function both as the "Graha" and the "Vādî" in a particular melody. The word "Amsa" is, however, often found to be used in the sense of a Vādî.

Nyāsa was the concluding note of a Jāti composition. Apanyāsa was the final note of the penultimate sub-section or phrase[17].

Tāra was the upper limit of the range of notes used and Mandra was the lower limit. The rule regarding the upper limit does not appear to be either clear or definite. This rule does not seem to be of much importance. The rule regarding Mandra is, on the other hand, quite clear and definite. Great importance appears to have been attached to it, as we shall see presently.

Shādava means hexatonic and Auduva means pentatonic. These are features of great importance, inasmuch as they are of material help in ascertaining the tonality of the Scale on which a Jāti is based.

Alpatva means rarity and Bahutva means frequency. Alpatva was of two kinds : first, Langhana, *i.e.* total omission, in Shadava and Auduva Jatis of notes which are not Amsas or of notes which attain Antara-mārga ; and second, *Anabhyāsa, i.e.*

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16. 'यो यत्रांशो स तत्र वादी।"

17. 'न्यासो ह्यंग-समाप्तौ।"

"अंग-मध्येऽपन्यास एव स्यात्।"

Anga (lit. limb) means a section. Here it must be taken to mean the last section. Apanyāsa was placed at the end of the first half of this section.

non-repitition of weak notes[18]. It is clearly laid down that an Amsa could never be omitted. Gandhāra had to be omitted in ascent when Antara was substituted for it. Bahutva refers to frequent use of Amsas and other strong notes. These features are only occasionally mentioned in the descriptions of the Jātis and are not, therefore, of much help in ascertaining their character.

Amsa, Nyāsa, Apanyāsa, Shādava, Auduva and Mandra are, therefore, to be considered as the six essential features of a Jāti.

It will appear from the passages of the Nātya Shāstra describing the ten Lakshanas (characteristics) of Amsa, quoted in the fourth chapter, that it held the foremost position of importance in a Jāti. The special melodious character (Rāga) of a Jāti is said to reside in its Amsa. In the passage describing Karmāravî Mārjanā quoted above the Amsa is characterised as the Jāti-rāga-svara.

Nyāsa was considered to be a note of equal if not greater importance in a Jāti. In fact, it was more characteristic of a Jāti than the Amsa, as will appear from the fact that the seven Shuddha Jātis were named Shādjî, Ārshabhî, Gāndhārî etc., after the seven notes of the Scale, which were their Nyāsas. This was the only unchangeable feature of a Jāti. It is laid down that for creating a Vikrita Jāti from a Shuddha Jāti all its features except the Nyāsa can be altered[19]. This shows that every Jāti was characterized by a single Nyāsa, whereas its Vādî might be chosen from amongst several Amsas.

18. 'द्विविधमल्पत्वं लंघनाद् अनभ्यासाच्च। तत्र. षाडवौडुवितकरणत्वम् अंशानां [अनंशानां] गीतानाम् अन्तरमार्गम् उपगतानां स्वराणां लंघनाद्. अनभ्यासाच्च सकृदुच्चारणम् यथाजाति।"

The correct reading must be "अनंशानां" which has been put within brackets. The word Antara-mārga seems to refer to Antara and Kākali. Gāndhāra and Nishāda were omitted in ascent when Antara and Kakali were substituted for them.

19. "शुद्धा अन्यून-स्वराः स्वरांशग्रहन्यासाः। एषामन्यतमेन द्वाभ्याम् बहुभिर्वापि लक्षणैर्विक्रियामुपगता न्यासवज विकृतसंज्ञा भवन्ति।"

The feature called Apanyāsa was, as its name indicates, akin to and closely related to Nyāsa. It effected co-ordination of the last two sub-sections or phrases, by responding to the Nyāsa, which concluded the last sub-section or phrase. Just like the Nyāsa it was always one of the Amsas. In some Jātis the same Amsa was used as both Nyāsa and Apanyāsa. But, this usage appears to have been inconsistent with the original scheme. This will be evident from the rule about Mandras. It is stated as follows about them :—

> "त्रिविधा मन्द्रगतिः । अंशपरा न्यासपरा अपन्यासपरा चेति ।
> मन्द्रस्त्वंशपरो नास्ति न्यासे तु द्वौ व्यवस्थितौ ।"
>
> "Movements (downwards) of the Mandras are of three kinds. It may go down upto the Amsa, or upto the Nyāsa or up to the Apanyāsa. There can be no movement upto Amsa, where it coincides with the Nyāsa ; in that case, there can be only two kinds of movement".

It appears from this that in some cases the same note could be used both as the Nyāsa and the Amsa, *i.e.* to say, the Vādî. The clear implicalion is that the Nyāsa and the Apanyāsa were different notes in the original scheme. This rule was quite correct from the aesthetic point of view ; because, satisfactory co-ordination of the two phrases was possible only where two different notes, closely related to each other, were placed at the ends of those phrases, as is the practice in modern Rāga music.

We find from the descriptions of the Jātis that almost invariably the Nyāsa and the Apanyāsa were amongst notes mentioned as Amsas. Every Grāma having only three Amsas, as we have seen from the rules of Mārjanā, every Jāti based on it had also only three Amsas. Usually, therefore, one of these was used as the Vādî, another as the Nyāsa and the third as the Apanyāsa. As the same note might be used both as the Vādî and the Nyāsa, all the three Amsas might be used as the Vādî. But, as the Apanyāsa must be a note different from the Nyāsa, only the two Amsas which were not used as the Nyāsa could be used as the Apanyāsa. It, therefore, follows, that

every Jāti had according to the original scheme three Amsas, one Nyāsa and two Apanyāsas.

(b). Number of Jātis originally twenty-one: Eighteen Jātis have been described in the Nātya Shāstra. These are stated to have altogether sixty-three Amsas, twenty-one Nyāsas and fifty-six Apanyāsas. As, according to the rules explained above each Jāti must have one Nyāsa, the total number of Jātis must originally have been twenty-one. But, we find only eighteen Jātis mentioned. It appears that three of the original Jātis were somehow lost or their names forgotten. In order to make up the total number twenty-one, one extra Nyāsa was given to Shadja-Madhyamā Jāti and two to Kaishikî Jāti. In the absence of separate names, the first of these must be considered to be a combination of two distinct Jātis and the second a combination of three.

Each Jāti having three Amsas, the total number of Amsas was sixty-three ($21 \times 3 = 63$).

The total number of Apanyāsas was forty-two, as each Jāti had two Apanyāsas. But, the total number is stated to be fifty-six. It appears from this that one extra Apanyāsa was added to each of the fourteen Vikrita Jātis, thus making up the total number fifty-six ($42 + 14 = 56$). This implies that the Amsa, which was used as the Nyāsa came to be used also as the Apanyāsa. This change made by later theorists was evidently a contravention of a fundamental rule of Jātis.

The changes effected in the Amsas of Jātis was of a most serious character, as they made the tonality of the Scales, on which the Jātis were based, uncertain and doubtful. It would have been almost impossible to ascertain their tonality unless, fortunately, the omitted notes of the hexatonic and pentatonic forms were in most cases correctly recorded and preserved. We find in the descriptions of the Jatis that the numbers of Amsas belonging to them vary from one to seven. A Jāti with a single Amsa is quite consistent with the fundamental principles; because, in practical use only one Amsa could be used as the Vādî. But, to provide a Jāti with more than three alterna-

tive Amsas is to make the tonality of the Scale on which it is based ambiguous and uncertain. The last stage of decay of the system was reached when all the seven notes including the omissible ones were made Amsas of Shadja Madhyamā Jāti. An ingenious scheme was devised by some clever theorists in order to make up the traditionally fixed total number of Amsas. The eighteen Jātis were divided into six groups of three and Jātis included in these groups were provided with gradually increasing numbers of Amsas from one to six. These numbers added together give the number twenty-one (1+2+3+4+5+6=21). This number multiplied by three gives the number sixty-three[20]. This distribution of Amsas amongst Jātis in arithmetical progression, however interesting, is incompatible with the scientific theory of the structure of Scales. We have seen that the number sixty-three can be arrived at by the simple process of multiplying twenty-one the number of original Jātis by three, the number of Amsas, which legitimately belongs to each Jāti. The above scheme, however, so far as it appears from the extant text of the Nātya Shāstra, was not correctly worked out, as we find in this treatise that the group having five Amsas include four Jātis, that only one Jāti has six Amsas, and that a Jāti with seven Amsas, which is inconsistent with the scheme, is interpolated.

(c). Transilient forms of Jātis : A remarkable sense of tonality was manifested by the originators of the Jāti system in their appreciation of the significance of hexatonic forms of Scales. All the Jātis except four are described as either

20 "सर्वासामेव जातीनां त्रिजातिस्तु गणाः स्मृताः ।
सर्वथा चैव विज्ञेया वर्धमान-स्वरा यथा ॥
एक-स्वरः द्विस्वरश्च त्रिस्वरोऽथ चतुःस्वरः ।
पंचस्वरः षट्स्वरश्च तथा सप्तस्वरोऽपि च ॥"

N. S. 28, 99-100

The inclusion of the group of Jātis with seven Amsas make the total number of Amsas eighty-four. It is, therefore, clearly an interpolation.

Shādava or both Shādava and Auduva. It is noteworthy that the note to be omitted in the Shādava form of a Jāti was invariably one of the two notes to be omitted in its Auduva form. This shows that ancient theorists were instinctively conscious that omission of only one of the two notes was compulsory. So, a Shādava Jāti could be used as Auduva and *vice versa*, as will be found from the following passage :

"यास्ताः पंचस्वराः प्रोक्ता याश्चैताः षट्स्वराः स्मृताः।
कदाचिदौडवीभूताः कदाचित् षाडवीकृताः॥"

"Those (Jātis) which consists of five notes are sometimes used as Shādava and those which contain six notes are sometimes made Audava".

This usage was quite in accord with the scientific rule of compulsory omission of one of the two notes making a false Third in a Scale and of optional omission of another note bearing a particular relationship with it, mentioned in a preceding chapter dealing with transilient Scales. We have seen in that chapter that omissibility of a note depends entirely on the tonality of the Scale, particular notes being omissible in a Scale of a particular tonality having particular notes as its Amsas. The Scale on which a Jāti is based and its Amsas can, therefore, be correctly ascertained if its omissible notes are known.

(d). The six basic Grāmas : In the descriptions of Jātis given in the Nātya Shāstra we find altogether seven pairs of omissible notes. These are RD, NG, PR, DG, SP, PS, and GN. The notes to be omitted in the hexatonic forms are placed first in these pairs. This explains the difference between two pairs of same notes, e,g., NG and GN. The pair RD is omissible in the Sa-initial authentic form of Madhyama Grāma (Kaishika Grāma of Kāshyapa). The pairs NG and PR are omissible in the Shadja Grāma. The pair DG is omissible in the Ri-initial plagal form of Gandhāra Grāma, which we shall call Karmāravī Grāma. The pair SP is omissible in the original form of the Madhyama Grāma. The pairs PS and GN are omissible in Madhyama Sādhārana or Dhaivata Grāma.

These Scales are shown below in Just Notation. The false Thirds are indicated by means of braces overhead and the Amsas and omissible pairs of notes are shown in separate columns. The original Gāndhāra Grāma which seems to have been sometimes used is also shown :—

Amsa — Omissible pairs of notes

1. **Kaishika Grāma :**

   *Sa Ra Ga Ma *Pa Da Na Sa¹ - S,G,P - RD ; MN

2. **Shadja Grāma :**

   *Sa Rā Go *Ma Pa Da Nŏ Sa¹ - S,M,D - NG ; PR

3. **Karmāravī Grāma :**

   *Ra Go Mâ *Pa Dâ No Sa Ra - R,P,N - DG ; SM

4. **Madhyama Grāma :**

   *Ma Pā Da *Nŏ Sa Rā Gŏ Ma - M,N,R - SP ; GD

5. **Dhaivata Grāma :**

   *Da Nā Sa *Rā Ga Ma Pā Da - D,R,M - PS ; GN

6. **Gāndhāra Grāma :**

   Ga Ma Pa Da Na Sa Rā Ga - G,D,S - NM, RP

(e). **Examination of Jatis :** An examination of the Jātis as described in the current text of the Nātya Shāstra in the light of the forms of the ancient Scales shown above will show that some of the descriptions are so insufficient or full of mistakes that it is either impossible or very difficult to find out the Scales of these Jātis. It is mentioned in the following passage that the two chromatic notes Antara and Kākali are sometimes necessary for expressing the Jātis :

"द्विविधान्तरमार्गस्तु जातीनां व्यक्ति-कारकः ।"

"The two kinds of Antara process give expression to the Jātis".

Bh. N., 28, 83.

The two Antara processes referred to here are evidently the raising of the two notes Gāndhāra and Nishāda by two Shrutis, which convert them to Antara and Kākali. These processes, as we have seen above, give rise to the Sādhārana forms of the two ancient Scales. Unfortunately, these processes are nowhere mentioned in the descriptions of the Jātis. Nevertheless, if the Scales of the Jātis can be ascertained from the other features, the two chromatic notes can be supplied where needed. The only Scales which contain the Antara and Kākalî, are the Kaishika, the Dhaivata and the Gāndhāra Grāmas.

Nine of the Jātis have one to three Amsas. The Scales of these Jātis can be easily ascertained if the other features are correct. The tonality of the Scales of the remaining nine Jātis, which contain four to seven Amsas is ambiguous.

The theory about admixture of two or more of the seven Shuddha Jātis giving rise to the eleven Vikrita Jātis is of no help in ascertaining the Scales, as combination of Jātis of different Scales is inconceivable. We have, therefore, to rely for this purpose on those two features of Jātis which are unalterably fixed, viz., Nyāsa and omissible notes.

Three Jātis are found to have been based on the Shadja Grāma. These are Shādjî, Shadja-Madhyamā and Shadjodîchyavā, their omissible notes being N, NG, and PR respectively. The Auduva form of Shādjî is not mentioned. It may be had by omitting either NG. or NM. If NG be taken as the omissible notes, the Scale of the Jāti would be Shadja Grāma and if NM be taken as the omissible notes, then the Scale of the Jāti would be Gāndhāra Grāma in its original form, with Antara and Kākalî. Shādjî would, thus, represent two different Jātis, one with S,M and D and the other with S,G and D as the Amsas. There is no doubt that it originally belonged to Shadja Grāma, which was the earliest Scale. But, from the prominence given to G it would appear that Shādjî of Gāndhāra Grāma became more popular than that of Shadja Grāma. Shadja-Madhyamā is an anomalous Jāti having two Nyāsas and seven Amsas. As the omissible notes are N and G, its Scale must be Shadja Grāma

and its Amsas S, M and D. If S be taken as the Nyāsa, there would be no difference between it and the Shādjî Jāti. So, M must be taken as the Nyāsa. Shadjodîchyavā, which also has M as its Nyāsa, is distinguished from the last-mentioned Jāti by its omissible notes P and R.

Naishādî Jāti is based on Madhyama Grāma in its original form. Its omissible notes are stated to be same as those of Dhaivatî, which are P and S. These notes must be taken in the inverse order, and S taken as the omissible note for the Shādava form. The Amsas must be N, M and R instead of N,G and R as found in the text.

The very name of Madhyamā Jāti would suggest that it belongs to Madhyama Grāma. But, from the description given it is easier to connect it with Dhaivata Grāma. It is, however, almost inconceivable that there was no Jāti of Madhyama Grāma with its principal note Madhyama as the Nyāsa. We must, therefore, conclude that some serious misreadings have been made in the text. It is stated in the description of Panchamî Jāti that its omissible notes are the same as those of Madhyamā Jāti. We shall see below that Panchamî Jāti belongs to Karmāravî Grāma and that, consequently, its omissible notes are D and G. The omissible notes of Madhyamā Jāti were, therefore, those notes taken in the inverse order, *i.e.*, G and D and not G and N as given in the text. The latter two are omissible notes of Dhaivata Grāma and the former two those of Madhyama Grāma. N of the text must be taken as misreading for D.

The Kaishika form of Madhyama Grāma appears to have given rise to the four Jātis: Kaishikî, Shadja-Kaishikî, Gāndhārî and Rakta-Gāndhārî. R and D are mentioned as the omissible notes of Kaishikî, Gāndhārî and Rakta-Gāndhārî. No mention is made of the omissible notes of Shadja-Kaîshikî. R and D are, however, mentioned, as its weak notes. S, G and P are stated to be its Amsas. There is, therefore, no doubt that this Jāti belongs to Kaishika Grāma. A good deal of confusion has been made in the

description of Kaishikî Jāti, which appears to have held prominent position amongst Jātis, being the first Jāti based on the most popular Scale. It is provided with six Amsas, which include one of the omissible notes D. Three notes are given as Nyāsas, viz., P, G and N. We have seen that P was the Nyāsa, which characterized the Kaishika Grāma of the Shikshā and the rock inscription. P was, therefore, also the Nyāsa of Kaishikî Jāti, which was directly derived from that Grāma. G might also be used as the Nyāsa of another Jāti of the same name as it is one of the Amsas. But, this Jāti is useless as it cannot be distinguished from Gāndhārî Jāti, which has G for its Nyāsa. N, which is not as Amsa of Kaishika Grāma, cannot be a Nyāsa of Kaishikî Jāti. G is stated to be the Nyāsa of Shadja-Kaishikî Jāti. This Nyāsa makes it indistinguishable from Gāndhārî. The prefix 'Shadja' of its name clearly points to the fact that the real Nyāsa of the Jāti was that note. Rakta-Gāndhārî is indistinguishable from Gāndhārî. Its distinctive features appear to have been forgotten at the time its description was written.

Three Jātis were based on the Karmāravî Grāma: Karmāravî, Panchamî and Āndhrî. Though the omissible notes of Karmāravî Jāti are not mentioned, there is no doubt that it was based on the Grāma of that name, as its Amsas are stated to be R and P. Panchamî also was based on that Grāma, as the same two notes are mentioned as its Amsas and those notes together with N are stated to be its Apanyāsas. Its omissible notes are stated to be same as those of Madhyamā Jāti, viz, G and N. These should be D and G. P is mentioned as Nyāsa of both Panchamî and Karmāravî. This renders them indistinguishable. In order to distinguish it from Panchamî, which must have P for its Nyāsa, Karmāravî should have for its Nyāsa R, which is the starting note of the Grāma from which it derives its name. Āndhrî has S as the omissible note and R, P and N are included in the four notes given as its Amsas. It, therefore, belongs to Karmāravî Grāma. S and M are the omissible notes of one of the Auduva forms of

Karmāravî Grāma. But, M is not mentioned as an omissible note on account of its traditional unomissibility. G, which is stated to be the Nyāsa, is not an Amsa. Its Nyāsa should be N, as R and P are the Nyāsas of the other two Jātis of this Grāma.

Dhaivata Grāma gave rise to the two Jātis: Ārshabhî, and Dhaivatî. Dhaivatî Jāti is almost correctly described in the Nātya Shāstra. Its omissible notes are stated to be P and S, and Amsas R and D. The Nyāsa is D and the Apanyāsas are R, M and D, which are the three Amsas of Dhaivata Grāma.

The omissible note in the Shādava form of Ārshabhî Jāti is stated to be N. The other note omissible in the Auduba form is stated to be P. This is evidently due to misreading of the manuscript, as we find in Sangîta Ratnākara that S and P are the omissible notes of this Jāti. The Amsas are stated to be R, D and N. The word "Saptama" (N) must be a misreading of "Madhyama".

The three Udîchavā Jātis, as stated above, belong to the three ancient Grāmas in their Sa-initial plagal forms. Shadjodîchyavā is, therefore, based on Shadja Grāma in its original form, as stated above. Madhyamodîchyavā Jāti belongs to Madhyama Grāma arrived at by substituting Antara for Gāndhāra of Shadja Grāma as found in Shādava Grāma of the Shikshā. Gandharodîchyavā is based on the Sa-initial Gandhāra Grāma arrived at by different processes adopted by Nārada and Yāstika, which have been explained above.

The descriptions of Gāndhāra-Panchamî and Nandayantî Jātis are too meagre for ascertaining the Scales on which they are based.

(f). Descriptive table of fifteen Jātis: An approximately correct idea of the original Jāti scheme may be had from the descriptions of the fifteen Jātis given below:

Jāti	*Grāma*	*Amsas*	*Nyāsa*	*Apanyāsa*	*Omissible N*
1. (a) Shādjî, No. 1	Shadja	S,M,D	S	M,D	N (G)
(b) Shādjî, No. 2	Gāndhāra	S,G,D	S	G,D	N (M)
2. Ārshabhî	Dhaivata	D,R,M	R	D.M	PS
3. Gāndhārî	Kaishika	S,G,P	G	S,P	RD
4. Madhyamā	Madhyama	M.N,R	M	N,R	GD
5. Panchamî	Karmāravî	R,P,N	P	R,N	DG
6. Dhaivatî	Dhaivata	D,R,M	D	R,M	PS
7. Naishādî	Madhyama	M,N,R	N	M,R	SP
8. Shadja-Madhyamā	Shadja	S,M,D	M	S,D	NG
9. Kaishikî	Kaishika	S,G,P	P	S,G	RD
10. Shadja-Kaishikî	Kaishika	S,G,P	S	G,P	(RD)
11. Karmāravî	Karmāravî	R,P,N	R	P,N	(DG)
12. Āndhrî	Karmāravî	R,P,N	N	R,P	S (M)
13. Shadjodîchyavā	Shadja	S,M,D	M	S,D	PR
14. Madhyamodîchyavā	Madhyama S-initial	S,M,D	M	S,D	P (R)
15. Gāndhārodîchyavā	Gāndhāra S-initial	S,M,D	M	S,D	P (R)

The two notes given in the last column are the omissible notes of the Auduva form of a Jāti. The omissible note of the Shādava form is the first of these notes.

The feature called Mandra has not been shown in the above descriptions of Jātis, because, as seen above, any one of the three Amsas can be used as the Mandra.

D. MURCHHANĀS.

The earliest mention of Murchhanās is found in the second Khanda of first Prapāthaka of Nāradîyā Shikshā, which contains names of twenty-one Murchhanās of the three ancient Grāmas.

The seven Murchhanās of Gāndhāra Grāma were forgotten along with the Grāma at a later period. Though Murchhanās came into existence long before the Jāti period, they were of no use in the Jāti scheme, in which no mention is made of them. Their true significance does not appear to have been perceived until about the close of the Jāti period.

The Jāti scheme may be said to have been founded mainly on the melodic effect of the Nyāsa in different positions in the octave used in a melodic composition. As only an Amsa could be used as a Nyāsa, those forms of the known Scales were taken as basis of the Jāti scheme, in one or more of which each one of the seven notes of the gamut functioned as an Amsa. Thus, S was an Amsa of Shadja Grāma and Kaishika, R was an Amsa of Madhyama Grāma and Karmāravî, and so on. All the seven notes of the gamut were thus available for being used as the initial note (Mandra) of the melodic octave. A particular note used as Nyāsa did not, therefore, indicate a particular position in the melodic octave. Thus, S the first degree of Shadja Grāma became the third degree of the melodic octave of Shādjî when it had D as its Mandra or starting note. This Shādjî was indistinguishable from the Gāndhārî, in which S was the first degree and G the true third degree. Under these circumstances, the distinction of Jātis indicated by their Nyāsas became illusory and meaningless. That distinction would

become real only if the melodic octaves of all Jātis started with the same note. The absence of such a rule frustrated the very object of the Jāti scheme. Consequently, the scheme collapsed when this draw-back came to be clearly perceived.

In view of the importance of Nyāsas the eighteen Jātis might be reduced to seven, Jātis having the same note as Nyāsa being put under a single head. For example, Shadja-Kaishikî might be considered to be only a different variety of Shādjî. In fact, according to the original plan all the Vikrita Jātis were considered as only derivatives of the seven Shuddha Jātis. The scheme may, therefore, be considered to consist of only seven Jātis based on the seven notes of the gamut. When the above-mentioned defect of the scheme was realised the basis of classification was shifted from the Nyāsas to the Mandras. Instead of the seven notes of the gamut being taken as the Nyāsas they were taken as the Mandras. The rule regarding Mandras had to be relaxed and everyone of the seven notes of the Scale came to be regarded as fit for being used as the Mandra. Each Scale, thus. gave rise to seven different Murchhanās, in which the Amsa appeared in all possible positions capable of producing different melodic effects as Nyāsa. When this aesthetic significance of Murchhanās was understood, a new scheme was evolved out of the ancient scheme of the Shikshā, which ultimately supplanted the Jāti system.

(a). Murchhanās in Nāradîyā Shikshā and Nātya Shāstra : The unusual forms of some of the ancient Scales, which had to be taken as the basis of the Jāti scheme, became useless for the new scheme. The two oldest Scales and the two Scales derived from them were taken as the basis of this scheme. Each of the two original Scales gave rise to seven Murchhanās with the seven notes of the Scale as their Mandras or starting notes[21]. The fourteen Murchhanās of the two Scales were given distinctive names.

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21 Shārngadeva states in the sixth Prakarana of first Adhyāya (chapter) of Sangîta Ratnākara as follows :—

"मन्द्रः प्रकरणेऽत्र स्यात् मूर्छना प्रथम-स्वरः ।"

The names of these fourteen Murchhanās mentioned in the Nātya Shāstra are given below :—

Shadja Grāma		*Madhyama Grāma*	
Mandra	*Murchhanā*	*Mandra*	*Murchhanā*
S ...	Uttaramandrā	M ...	Saubîrî
N ...	Rajanî	G ...	Hārināshvā
D ...	Uttarāyatā	R ...	Kalopanatā
P ...	Shuddhashadjā	S ...	Shuddhamadhyā
M ...	Matsarîkritā	N ...	Mārgî
G ...	Ashvakrāntā	D ...	Pauravî
R ...	Abhirudgatā	P ...	Hrishyakā

Nāradîyā Shikshā gives the names of Murchhanās of Gāndhāra Grāma in addition to those of the other two. The names of only five of the Murchhanās of Shadja Grāma given in the Shikshā are the same as those of the Nātya Shāstra stated above. The names of all the other Murchhanās are different. For some reason or other, the earlier names of most of the Murchhanās appear to have been discarded and the names of the Nātya Shāstra came to be universally used in the post-Jāti period.

We have seen that Gāndhāra Grāma was replaced by Sādhārita, a derivative of the Shadja Grāma. No separate names for Murchhanās of this Grāma were, therefore, needed. These were called Sādhārana-krita Murchhanās of the Shadja Grāma. Similarly, Murchhanās of the Dhaivata Grāma were

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"In this Prakarana the first note of a Murchhanā is called Mandra".

Shārngadeva seems to imply by the statement that the word "Mandra" is used in this sense in that Prakarana only. But, he used the word in this sense in almost all of his descriptions of Rāgas of his time. In modern times the word is used in the sense of lower octave. But, in ancient music it was always used in the sense of first note of a Murchhanā. This will be proved by the following passage of Sangîta Makaranda:

"प्रतिपद्यादितिथिषु जाता मन्द्रास्तु संयुताः।
सनिधपमगरिसा ज्ञातव्या सप्तमूर्छनाः।
षड्जग्रामाश्रिता ह्येता नारदेन विवक्षिताः॥"

called Sādhārana-krita Murchhanās of Madhyama Grāma. This will be seen clearly from the following verse of Nātya Shastra.

"साधारणकृताश्चैव काकली-समलंकृताः ।
अन्तरस्वर-संयुक्ता मूर्छना ग्रामयोर्द्वयोः ॥"

"The Murchhanās of the two Grāmas are made Sādhārana when Kākalî and Antara are put in them".

N. S. 28,35.

(b). Shādava and Auduva Murchhanās : The fourteen Murchhanās of the two Grāmas could not only be made Sādhārana but also Shādava (hexatonic) and Auduva (pentatonic) as we see in the following passage :—

"पूर्णाः षाडवौडवितीकृता साधारणकृताश्चेति,
चतुर्विधाश्चतुर्दश मूर्छनाः ।"

"The fourteen Murchhanās are of four kinds : full, hexatonic, pentatonic and Sādhārana-made".

We have seen that most of the Jātis had one hexatonic and one pentatonic form. These transilient forms of Jātis were, as we have shown, in most cases scientifically correct. It appears to have been subsequently discovered that every Scale had two hexatonic and two pentatonic forms. The result of this discovery is found embodied in an almost comprehensive scheme of hexatonic and pentatonic Murchhanās, called Shādava and Auduva Tānas, which but for a few unfortunate mistakes, manifests a remarkable keenness of the musical faculty of the originator.

The false Thirds of the four ancient Scales and the omissible pairs of notes arising from them have been shown above in dealing with Jātis. The omissible notes of Shādava and Auduva forms of these Scales are shown below separately in order that the correctness of Shādava and Auduva Tānas of the Nātya Shāstra can be examined.

		Omissible Notes		
		Shādava		*Auduva*
1.	**Shadja Grāma** ...	P ; N	...	PR ; NG
2.	**Gāndhāra Grāma** ...	N ; R	...	NM ; RP
3.	**Madhyama Grāma** ...	S ; G	...	SP ; GD
4.	**Dhaivata Grāma** ...	G ; P	...	GN ; PS

A Shādava Grāma can have only six Murchhanās, as there are only six notes in it, which can be used as starting notes. Likewise, an Auduva Grāma can have only five Murchhanās. There being two Shādava and two Auduva forms of a Scale, it can have twenty-two transilient Modes, twelve of them being Shādava and ten Auduva. The four Scales, therefore, have altogether eighty-eight transilient Modes.

It will be observed that the omissible note N is common to the Shādava forms of both Shadja and Gāndhāra Grāmas. As these two Grāmas are counted as one in the Nātya Shāstra, the Gāndhāra Grāma being considered in it as the Sādhārana-Krita form of Shadja Grāma, the omissible notes of the Shādava forms of this Scale would be naturally taken to be only three in number instead of four. Thus, we should expect the omissible notes of Shādava forms of this Scale to be P, N and R. For similar reasons, the omissible notes of Auduva forms of this Scale would be PR, NG and NM. Similarly, the omissible notes of Shādava forms of Madhyama Grāma would be S, G and P; and those of its Auduva forms would be SP, GD and GN. There would, therefore, be eighteen (6×3) Shādava and fifteen (5×3) Auduva Murchhanās of each of the two Scales. The total number of transilient Modes of the two Scales would be sixty-six (33×2).

(c). Tānas of Nātya Shāstra: The total number of transilient Modes called *Tānas* in the Nātya Shāstra is stated in that work to be eighty-four instead of sixty-six. Of these forty-nine are Shādava and thirty-five Auduva Tānas. Of the Shādava Tānas twenty-eight belong to Shadja Grāma and twenty-one to Madhyama Grāma. Of the Auduva Tānas twenty-one belong to Shadja Grāma and fourteen to Madhyama Grāma. The omitted notes of Shādava Tānas of Shadja Grāma are S, R, P and N and those of the Madhyama Grāma are S,R and G. The omitted notes of the Auduva Tānas of Shādja Grāma are SP, RP and NG and those of Madhyama Grāma are RD and GN. The seven Shādava forms of the two Scales multiplied by seven gave forty-nine Shādava Tānas and the

five Auduva forms of the two Scales multiplied by seven, thirty-five Auduva Tānas. Each transilient form of a Scale is supposed to give rise to seven Tānas or Murchhanās. But, a Shādava Scale can have only six Murchhanās and an Auduva Scale only five Murchhanās. This mistake was due to sheer inadvertance and did not affect music in the practical field, because, the redundent Tānas created by it had no existence in reality. The scheme, however, had some serious mistakes. These must be corrected in order to make it the faultless scheme shown above. For that purpose, the Tānas of Shadja Grāma without S and SP and those of Madhyama Grāma without R and RD must be left out; and Tānas without NM must be added to Shadja Grāma and those without P, SP and GD added to Madhyama Grāma. The only two real mistakes of the Scheme are the Tānas without P and GD in the Madhyama Grāma. Exclusion of Tānas without NM in Shadja Grāma is to be accounted for by the traditional unomissibility of M. The Shādava Tānas of Madhyama Grāma without S require corresponding Auduva Tānas without SP. These Tānas were inadvertently included in Shadja Grāma, in which S is the most important note and cannot be omitted.

The drawback of this scheme from the practical point of view is that the transilient Modes of the Sādhārana-Krita forms of the two Grāmas are not seperately mentioned.

E. EARLIEST STAGES OF THE RĀGA SYSTEM.

(a). Classes and Sub-classes : In the second Adhyāya (chapter) of Sangîta Ratnākara Shārngadeva gives a rather elaborate account of the different classes of Rāgas, which existed before his time and also those of his own time. The oldest writers on Rāga music were Matanga and Yāstika, from whose works Shārngadeva avowedly derived most of his materials regarding the earliest Rāgas, most of which had become obsolete in his time. The earliest melodic types may be roughly divided into three classes, viz., Rāgas, Bhāshās and Angas. It would appear from this classification that the name

Rāga was originally applied only to the first class of types. But, the name came, as Shārngadeva tells us, to be applied to all the three classes subsequently. There were three sub-classes of Rāgas, viz, Grāma Rāgas, Uparāgas and Rāgas (Deshî); three of Bhāshās, viz, Bhāshās, Vibhāsās and Antara Bhāshās; and four of Angas, viz., Rāgāngas, Bhāshāngas, Upāngas and Kriyāngas. The numbers of these melodic types are shown below :—

1.	Rāgas	Grāma Rāgas	- 30	
		Uparāgas	- 8	
		Rāgas (Deshî)	- 20	
				58
2.	Bhāshās	Bhāshās	- 96	
		Vibhāshās	- 20	
		Antara Bhāshās	- 4	
				120
3.	Angas	Rāgāngas	- 21	
		Bhāshāngas	- 20	
		Upāngas	- 30	
		Kriyāngas	- 15	
				86
			Total	264

The names of the seven Shuddha Grāma Rāgas are identical with those of the seven basic modes of the Nāradîya Shikshā. The compositions on these modes found in Kudimiyāmālāi rock inscription had nothing in common with either medieval or modern Rāgas. These compositions were not called Rāgas. By some musical fiction they came to be regarded as Rāgas and taken as the starting point of the Rāga system. Twenty-three other Grāma Rāgas were derived from these seven by means of the four Rîtis or styles called Gaudî, Bhinnā, Vesarā and Sādhāranî, making a total of thirty Grāma Rāgas. The Uparāgas and Rāgas donot appear to have any connection with Grāma Rāgas. The Bhāshās are said to be derived from some Grāma Rāgas and one Uparāga. The Angas came last; and most of them are said to be derived from either Rāgas and Bhāshās. Only fifty-two types belonging to the Anga class were in use in Shārngadeva's time. All the others had become obsolete.

(b). Mārga and Deshî : Two varieties of music appear to have come into prominence at this period. They were known as Mārga and Deshî. The former comprised the traditional artistic music of the orthodox school and the latter included the popular melodies peculiar to different countries or different localities of the same country. That these Deshî melodies played a prominent part in the make-up of the Rāga system is evident from the fact that many Rāgas bear the names of countries. Even some Grāma Rāgas bear the names of countries, *e.g.*, Gauda, Mālava and Sauvîra. In fact, Matanga designates, all Rāgas dealt with by him as Deshî. These Rāgas are nevertheless found to possess all the prominent features of Mārga music. It will be shown in a subsequent chapter that modern Rāgas resulted from a happy blending of Mārga and Deshî music.

The orthodox system of Mārga music was regulated by the ancient rules of art laid down in the Shruti, Jāti and Murchhanā schemes. In his descriptions of ancient Rāgas which had became obsolete in his time, Shārngadeva mentions the Jātis and the Murchhanās to which the Rāgas belonged and also some features of Jātis. The relationship of Rāgas to Jātis are, however, in most cases fanciful and it is often very difficult to ascertain the Grāma to which a Rāga belonged unless we take the Murchhanās as correct and not the Jātis. In describing the Rāgas of his own time the author never mentions either the Jātis or the Murchhanās. The Mode-octave is indicated by means of the Mandra note. The Grāma of a Rāga is not always mentioned. Only the Shadja Grāma is occasionally referred to. In this Scale too only the positions of the Semitones seem to be of any importance. Another Scale to which Sharngadeva gives a prominent place in his work is the Sādhārana or Kaishika. This Scale is different from Bharata's Scale of that name and practically identical with the Kaishika Grāma of Kāshyapa. The Sādhārana Grāma of Shārngadeva is also important from another point of view. The Vikrita notes devised by Shārngadeva for the purpose of creating this new Scale have been at a later period used by Rāmāmātya and other

theorists of the Southern School of Indian music for a different purpose and with a different meaning as will be shown in the chapters dealing with Melas of Southern India.

(c). Shārngadeva's Sādhārana Grāma : In the third Prakarana of the first Adhyāya (chapter) of his book Shārngadeva gives a description of twelve Vikrita notes. The word Vikrita is not used by the author in the sense of chromatic, as it is done in modern Indian music. This is evident from the fact that some of the Vikrita notes are so called even though they do not undergo any change in their original positions in the Scales. The word does not appear to have been used in this way by any other Indian writer. Of the twelve Vikrita notes only six are of Shārngadeva's own creation. The remaining six are ancient notes. Of the latter six notes three are the Antara, the Kākalî and the three-Shruti Panchama of Madhyama Grāma and the other three are notes resulting from them. The first three are ancient notes, with which we are already familiar. The other three are what Shārngadeva calls Achyuta notes as distinguished from Chyuta notes. The Achyuta or undisplaced notes are those which do not change their positions but are considered as Vikrita simply because the number of their Shrutis are increased or decreased on account of change of positions of the preceding notes. Of the Chyuta notes the ancient Antara and Kākalî obtained by sharpening G and N by two Shrutis or a Semitone were real chromatic notes and could be used as such. All the other Chyuta notes were obtained by shifting the original notes by only one Shruti and so could not be used as chromatic notes. The six Vikrita notes created by Shārngadeva and the six ancient Vikrita notes are shown below :—

Shārngadeva's Vikrita Notes	*Ancient Vikrita Notes*
1. Chyuta 2-Shruti S.	1. Achyuta 2-Shruti S
2. 4-Shruti R (Achyuta)	2. Antara or 4-Shruti G
3. 3-Shruti G	3. Achyuta 2-Shruti M
4. Chyuta 2-Shruti M	4. 3-Shruti P
5. 4-Shruti P	5. 4-Shruti D (Achyuta)
6. 3-Shruti N	6. Kākalî or 4-Shruti N

The 2-Shruti S of Shārngadeva was characterized as Chyuta in order to distinguish it from the ancient 2-Shruti S, which was qualified as Achyuta[22]. The former was obtained by giving one Shruti each to the higher and the lower notes R and N, thus making them 4-Shruti and 3-Shruti notes respectively. The ancient 2-Shruti S was an undisplaced note, which lost 2 shrutis in favour of N, making it Kākalî. M, just like S, had two 2-Shruti Vikritis, Chyuta and Achyuta, of which the former was obtained by giving one Shruti each to 3-Shruti P of Madhyama Grāma and G, making them 4-Shruti and 3-Shruti notes respectively ; and the latter (Achyuta) was obtained by giving two Shrutis to G, making it Antara.

All the six Vikrita notes of Shārngadeva are stated to belong to either Sādhārana or Kaishika. That these two words referred to the same Scale is evident from the fact that of the two Vikrita Notes S and N which owe their existence to each other, the former is said to belong to Sādhārana and the latter to Kaishika. The note that completed the Sādhārana Grāma of Shārngadeva was the ancient 4-Shruti D of Madhyama Grāma, which determined the position of 4-Shruti P in his Sādhārana Grāma. The positions of the notes of ancient Shadja Grāma

22. "च्यूतोऽच्युतो द्विधा षड्जो द्विश्रुतिर्विकृतो भवेत् ।
साधारणे काकलीत्वे निषादस्य च दृश्यते ॥
साधारणे श्रुतिं षाड्जीं ऋषभः संश्रितो यदा ।
चतुःश्रुतित्वम् आयाति तदैको विकृतो भवेत् ॥
साधारणे त्रिश्रुतिः स्यात् अन्तरत्वे चतुःश्रुतिः ।
गान्धार इति तद्भेदौ द्वौ निःशंकेन कीर्तितौ ॥
मध्यमः षड्जवद् द्वेधा त्वन्तर-साधारणाश्रयात् ।
पंचमो मध्यम-ग्रामे त्रिश्रुतिः, कैशिके पुनः ॥
मध्यमस्य श्रुतिं प्राप्य चतुःश्रुतिरिति द्विधा ।
धैवतो मध्यम-ग्रामे विकृतः स्याच्चतुःश्रुतिः ।
कैशिके काकलीत्वे च निषादस्त्रिचतुःश्रुतिः ॥
प्राप्नोति विकृतौ भेदौ द्वाविति द्वादश स्मृताः ॥"

S. R. I. 3, 42-47

and of those of Shārngadeva's Sādhārana Grāma are shown below :—

Shadja Grāma ...	N_1		S		R		G				M						P		
	22-	1-	2-	3-	4-	5-	6-	7-	8-	9-	10-	11-	12-	13-	14-	15-	16-	17-	18-19
Sādhārana Grāma		N_1	S				R			G			M					P	

Shadja Grāma ...	D	N	S^1
	20-21-	22-1-2-	3-4
Sādhārana Grāma	D	N	S^1

The Shruti intervals of Sādhārana Grāma stand thus :

*S	R	G	M	*P	D	N	S
4	3	2	4	4	3	2	

Seemingly this Scale was the Sa-initial Ni-mode of Shadja Grāma, equivalent to Primary Second Scale. But, it could not be so, as Common-Initial Modes had not yet come into existence. The real object Shārngadeva had in view in creating this Scale was to have a rational Shruti arrangement for Kaishika Grāma of Kāshyapa, which is equivalent to Primary first Scale. It will be observed that S and P are the two Tonics of this Scale, as each of them has two Samvādî notes. This was, however, only a fortunate consequence of the defect of the Shuri system ; because, expressed in just intonation, G of Shadja Grāma, corresponding to M of Sādhārana Grāma, is not consonant to N of the former Grāma, corresponding to S of the latter. But, for practical purposes Shārngadeva's attempt was quite successful. A comparative analysis of Shārngadeva's Sādhārana Grāma, Kāshyapa's Kaishika Grāma and modern Hindusthānî Shuddha Grāma will be found in the next chapter.

The care and ingenuity with which Shārngadeva describes his Sādhārana Grāma show that it was an important Scale widely used in his time. It is a remarkable fact that some of the Rāgas of his time can be identified with Rāgas of same names of modern music on the basis of this Scale only. Rāga Bhairavî, which has G as its Mandra, is an example.

(d). Kallinātha's Shrî Rāga Grāma : Before concluding this chapter, reference must be made to another Scale created by Kallinātha, the renowned commentator of Sangîta Ratnākara. He mentioned this Scale as the basis of Shrî Rāga in his commentary on that Rāga. It may, therefore, be called Shrî Rāga Scale of Kallinātha. It is the S-initial authentic Mode of Bharata's Kaishika Grāma (Dhaivata Grāma), i.e. to say, the First Mode of Primary Third Scale. This Scale was arrived at by first raising G and N of Shadja Grāma by one Shruti, which makes G and M as also N and S three-Shruti notes and then raising R and D by one Shruti, which makes them four-Shruti notes and G and N two-Shruti notes again[23]. The Shruti intervals would then stand thus :—

*S	R	G	M	*P	D	N	S
4	2	3	4	4	2	3	

This object of this Scale was the same as that of Shārngadeva's Sādhārana Grāma, viz., to make S and P the Tonics of the Scale by providing each with two Samvādî notes.

23 "श्रीरागे गान्धार-निषादयोर्मध्यम-षड्जादिमैकैक-श्रुत्याश्रव [क्रम] णेन त्रिश्रुतित्वे शास्त्रविहितेऽपि षड्ज-मध्यमयोरशास्त्र विहित त्रिश्रुतित्व-करणेन कैशिक्योरवैशसम्। तत्रापि, ऋषभ-धैवतयो-र्गान्धार-निषादादिम-श्रुत्याक्रमणेन प्रत्येकं चतुः-श्रुतित्वं वा शास्त्रविहितम्।"

Kallinātha's commentary on
Shri Rāga of Sangîta Ratnākara

"The word "Shāstra" (authoritative text) mentioned in this passage refers to the description of Sādhārana Grāma in Sangîta Ratnākara. The three-Shruti G and N and four-Shruti R and D are in conformity with that Shāstra, but not the three Shruti M and S. Kallinātha apparently considers this abberation to be due to the Deshi character of Shri Rāga. The Scale of Shrî Rāga given by him is, however, as shown above, quite correct scientifically. The words "कशिक्योरवैशसम्" are not clear.

CHAPTER IX.

I. MELAS : THEIR FUNCTION, NUMBER AND NOMENCLATURE.

II. MELAS OF NORTHERN INDIA.

I.

FUNCTION, NUMBER AND NOMENCLATURE OF MELAS.

A. Function of Melas.

(a). Origin and purpose : In the earliest stages of their development Rāgas were based on the Modes of the ancient Grāmas, which were all Primary Scales. These Scales had different notes as their Tonics, and the Modes of each of them had common Tonics. It has been pointed out in the chapter on Modes that there are certain difficulties involved in the use of Common-Tonic Modes, which arise out of æsthetic and practical considerations. It is quite probable that the defects of these forms of Modes from the æsthetic point of view were not fully realised by Indian musicians of the time. There can, however, be no doubt that the practical difficulty which arises naturally from the limited register of the human voice, was clearly perceived. In order to avoid this difficulty the initial note of every Mode of a particular Scale was brought to the pitch of the starting note of that Scale. This will be seen from the following passage of Sangîta Ratnākara :—

> "षड्जस्थानस्थितै-र्न्यांद्यै रजन्याद्या परे विदुः ।
> हारिणाश्वादिका गाद्यै-र्मध्यमस्थान-संस्थितैः ॥
> षड्जादि-मध्यमादौं-श्च तदूर्ध्वं सारयेत् क्रमात् ॥"

> "Later (writers) knew Rajanî and the succeeding (Murchhanās of the Shadja Grāma) as having Ni and the succeeding (notes) placed in the position of Shadja ; and Hārināshvā and the succeeding (Murchhanās of the Madhyama Grāma) as having Ga and the succeeding (notes) placed in the position of Madhyama. The

Shadja and the succeeding (notes of the Shadja Grāma) and Madhyama and succeeding (notes of the Madhyama Grāma) are to be shifted above them one by one".

S. R. I, 4, 14-16.

The process of shifting mentioned in the last line refers to the movable frets of the Indian Veenā. By shifting these frets up or down the Shruti-interval between two consecutive notes can be either increased or diminished. The first step in the process described above was to change the name of the fret representing the starting note of the Scale to the name of the initial note of the Murchhanā. The following steps were to shift one by one the succeeding frets according to the required Shruti-intervals and thus make them represent the other notes succeeding the initial of the Murchhanā. Thus, in order to have Rajanî Murchhanā of Shadja Grāma, first, the name of the fret representing Sa was changed to Ni, then, the second fret representing Ri of the original Grāma was shifted down by one Shruti making the first interval to include four Shrutis instead of three, and then, the name of the second fret was changed to Sa. The third and the succeeding frets were similarly shifted according to need and their names changed. All the Murchhanās of Shadja Grāma could by this process be placed in the mid-octave of the Veenā. The main theme of a Rāga could be played on this octave, the notes of the lower and the upper octaves being left for the subordinate themes. But, a similar process as suggested in the case of Madhyama Grāma leaves no notes of the lower octave for the Murchhanās of that Grāma, as they start from the bridge of the instrument, which represents Ma, the starting note of that Grāma. This difficulty was probably removed by converting the Shadja Grāma to Madhyama Grāma by shifting down the Ga fret of the former grāma by two Shrutis and thus converting it into four-shruti Dha fret of the latter, as suggested by Bharata in the Nātya Shāstra.[1] The

1. This process of conversion is described in the following passages of the Nātya Shāstra :—

"द्विविधैकमूर्छना-सिद्धिः । तत्र, द्विश्रुतिप्रकर्षाद् धैवतीकृते गांधारे मूर्छना ग्रामयोरन्यत्र, षड्जग्रामे ।"

N. S., 28

first or Sa fret of Shadja Grāma now became the first or Ma fret of Madhayama Grāma. The Murchhanās of the latter grāma could then be started from this fret by following the process explained above.

The most serious defect of this usage was that the same fret was capable of bearing seven different names according to different Murchhanās, to which it was set. Any the slightest inadvertance or distraction on the part of the player was, therefore, likely to make him forget the Murchhanā formed by him on the Veenā. This state of things is very beautifully portrayed by the great poet Kālidāsa in the following verse of his immortal poem "Megha-dūta :

"उत्संगे वा मलिनवसने सौम्य निक्षिप्य वीणाम्
मद्गात्रांकं विरचितपदं गेयमुद्गातुकामा ।
तंत्रीमार्द्रां नयनसलिलैःसारयित्वा कथंचित्
भूयो भूयः स्वयमपि कृतां मूर्छनां विस्मरन्ती ॥"

"O my friend, (there you will find my sweet-heart) with her Veenā thrust either on her lap or on her unclean garments, intent on singing aloud a song composed by herself containing strains in which the features of my person are described, but forgetting time after time the Murchhanā formed by herself on the Veenā by somehow shifting the frets which are wet with the tears of her eyes".

Megha-dūta, II, 25.

The only remedy for all the aforesaid difficulties was to retain unaltered the names of the frets and indicate the change of their positions in the different Murchhanās by means of chromatic notes. The two chromatic notes (Antara and Kākalî) existing at the time were not sufficient for this purpose. The aforesaid usage, in spite of its great inconvenience, continued for centuries until a drastic overhauling of the whole system became a dire necessity on account of the inroad of Deshî Rāgas, which could not be expressed by means of the Murchhanās of the four ancient Grāmas. These new Rāgas which

musical artists were constrained to incorporate into the orthodox system by the pressure of popular opinion were based on Scales which were not known to ancient India.

The few centuries following the twelfth (A. D.) were full of reformatory activities in this direction. Theorists of both the Northern and the Southern schools of Indian music came out from time to time during these centuries with different schemes of their own for the purpose of expressing not only the old Rāgas based on the ancient Primary Scales, but also the new Deshî Rāgas, which were based on Secondary and Chromatic Scales. They devised different schemes of Vikrita (chromatic) notes and by various combinations of these and the Shuddha (natural) notes produced what they called Samsthānas or Melas, capable of expressing all Rāgas of their times. old and new.

(b). The Earliest Scheme : The earliest of these writers on music was Lochana Pandita, a poet-musician of Mithila, which was in his time a district of Gauda (Bengal) ruled by King Ballāla Sen. He wrote his book Rāga Taranginî in the year 1160 A.D. (1082 Shaka), according to his own statement[2].

On the basis of a Scale of Origin which is in its Shruti arrangements identical with the ancient Shadja Grāma he devised his scheme of seven Shuddha and seven Vikrita notes including two extra-ordinary coincident notes. By different combinations of these notes he produced eleven Samsthānās (Melas) which he called by names of Rāgas based on them.

2 "भुजवसुदशमितशाके श्रीमद्वल्लालसेनराज्यादौ ।
वर्षैकषष्टिभागे मुनयस्त्वासन् विशाखायाम् ॥"

Rāga Taranginî.

Some songs of Jaideva are found to be incorporated in Rāga Taranginî. A jaigir was given to this poet by king Shiva Singha of Mithila by a copper-plate in the year 1339 A.D. Either the above colophon or the songs of Jaideva must have been interpolated into the book. Interpolation of the colophon, which contains categorical statements about the date of the book and the name of the ruling king of the time, is rather inconceivable. That of the well-known songs of the famous poet was, however, quite easy and possible.

Though his Scale of Origin is, in form the ancient Shadja Grāma, the three Shruti and four-Shruti intervals in it do not appear to have any difference of significance in his scheme of notes. Six of his Samsthānas can be roughly identified with Sa-initial Modes of any one of the Primary Scales.

But, if the Shruti-intervals be taken into account, most of them cannot be identified with any Murchhanā of even the Shadja Grāma. Lochana's Scale of Origin must, therefore, be taken to represent all the Primary Scales which are similar to each other. Consequently, the aforesaid six Samsthānas must be taken to represent Sa-initial Modes of all the Primary Scales, and the three-Shruti and the four-Shruti intervals must be treated as Tones of equal length.

(c). Three methods of expressing Vikrita notes : Only five chromatic notes are required for expressing Common-Initial Modes of Primary Scales in Semitonic Notation. Leaving out of account the two extraordinary coincident notes, the same number of Vikrita notes are used by Lochana and all other writers of the medieval period. Each writer, however, has his own method of expressing these five Vikrita notes. There are three possible methods for expressing these notes on the basis of the ancient Scale of twenty-two Shrutis as the Scale of Origin. First, a Vikrita note may be expressed in terms of Shrutis according to its distance from the last preceding note. Secondly, it may be given a distinctive qualification which does not indicate its position in relation to the Shuddha note or any other note of the Scale. Thirdly, it may be expressed by means of a qualification which clearly indicates its position in relation to the Shuddha note. The drawback of the first method is that it does not give a definite idea about the position of the note in the Scale unless the last preceding note is fixed in its position. As the starting note Sa and the fifth note Pa are the only two notes which are considered to be fixed in their positions in modern Indian music, the only two other notes which can have their altered positions definitely indicated by means of Shrutis are the second note Ri and the sixth note Dha. But, the altered

positions of the other three notes cannot be so indicated by means of Shrutis. We, therefore, find that, though most writers of Southern India express the altered positions of Ri and Dha by the words Chatuh-Shruti, Pancha-Shruti or Shat-Shruti (having four, five or six Shrutis), they express the altered positions of the other three notes by the second method of giving them distinctive qualifications which give no idea about their actual positions in the Scale. For example: Sādhārana Ga, Prati Ma and Kaishika Ni. The best of the aforesaid three methods from the practical point of view is the third one by which the position of a Vikrita note either above or below the Shuddha note and also its distance from it can be indicated by an appropriate qualifying term. In the scheme devised by Vitthala, a well-known theorist of Southern India, the position of a Vikrita note was indicated by the extent of the movement upwards of the Shuddha note by one, two, three, or four Shrutis expressed by the words Eka-gati, Dvi-gati, Tri-gati and Chatur-gati. This description no doubt gives a vivid idea about the position of the Vikrita note. But, the defect of this method is that it makes no provision for a flat note. Vitthala's Vikrita notes were all sharp notes. Such a method could suit only the Scale of Origin of Southern India, in which all the Shuddha notes were considered to be placed in their lowest possible positions. Owing to this conception of the Scale of Origin, which still prevails in the Kārnātic system, no flat notes are to be found in any musical work of Southern India. But, flat notes are used all over the world except Southern India. Vitthala's method of expressing Vikrita notes is, therefore, unsuitable for all systems of music except the Kārnātic.

(d). Vikrita notes of Lochana Pandita: These considerations lead to the conclusion that the method for expressing Vikrita notes introduced by Lochana Pandita and followed by almost all subsequent theorists of the Northern School is most convenient and useful for practical purposes. According to this method a Shuddha note, when raised up in the Shruti Scale, was qualified as "Tīvra" (sharp) and when, lowered down

in that Scale, was qualified as "Komala" (flat). The distance of a sharp note from its original (Shuddha) position was indicated by the terms Tîvra, Tîvratara, Tîvratama and Atitîvratama, according to its position one, two, three and four Shrutis respectively above the Shuddha note. Komala notes could be similarly distinguished as Komala, Komalatara etc., if so required. But, only one flat position of notes was required in the scheme adopted by the aforesaid writers.

This method of designating chromatic notes as sharp and flat, which is followed in modern Hindusthānî music, is also used in European music. Somanātha is the only South Indian writer who followed this method in naming some of his Vikrita notes. But, unfortunately, the method, which only was calculated to bring about an uniformity in the system of notation throughout India, was neither taken up nor improved upon by subsequent writers, thus leaving a wide breach between the Northern and the Southern systems. The same method, with necessary modifications, has been adopted in naming the notes of Just Notation in the present treatise.

By following this method Lochana worked out eleven ordinary Vikrita notes, including nine sharp and two flat notes. These were Tîvra, Tîvratara and Tîvratama Ga, Ma and Ni and Komala Ri and Dha. But, he brought to use only the following five ordinary Vikrita notes :

(1) Komala Ri
(2) Tîvratara Ga
(3) Tîvratara Ma
(4) Komala Dha
(5) Tîvratara Ni

These five notes he utilised for expressing the six Samsthānas which are identifiable with Modes of the Primary Scales. For some Modes of Chromatic Scales he used two other extraordinary notes which were coincident with two of the ordinary

notes. These were Atitîvratama Ga, coincident with Shuddha Ma, and Tîvratara Dha[3], coincident with Shuddha Ni.

Lochana's scheme, therefore, included only twelve notes, of which seven were Shuddha and five Vikrita notes. The Shruti-intervals of these twelve notes were as follows :—

2. 1. 2. 2. 2. 2. 2. 2. 1. 2. 2. 2

All these intervals were undoubtedly treated as Semitones. The ancient Shadja Grāma containing two three-Shruti intervals being made the Shuddha Scale, two of the Semitones had to be represented by only one Shruti. But, as the other ancient Scales had been forgotten, the three-Shruti intervals had lost their significance. The reasonable course for Lochana and other medieval theorists would, therefore, have been to change the three-Shruti intervals to four-Shruti ones and thus make the Scale consist of twenty-four Shrutis instead of twenty-two, thus facilitating the division of the Scale into twelve equal Semitones of two Shrutis. The way in which these twelve notes were used by the medieval theorists to form the different Samsthānas or Melas leaves no doubt that they intended them to represent notes of a Scale divided into twelve equal Semitones. Their Shuddha Scale should, therefore, have contained only four-Shruti and two-Shruti intervals distributed as follows :—

4. 2. 4. 4. 4. 2. 4

3. In his explanation of Purvā Samsthāna Lochana uses 'Tîvra Dha.' If this Dha be taken to be high Dha (Dâ) which is higher than Shuddha Dha (Da) by one comma, Purvā becomes indistinguishable from Iman. It must, therefore, be taken to be a mistake for Tîvratara Dha, a note coincident with Shuddha Ni (B flat). In fact, Hridaya Nārāyana, who follows Lochana in almost every respect, corrects this mistake in his "Hridaya Prakāsha", as will be seen from his definition of Purvā, which is as follows :—

"गमधा स्युस्तीव्रतरा निषादः काकली स्मृतः ।
पूर्वा स्यात् तत्र संपूर्णा पंचमादिकमूर्छना ॥"

It would, therefore, appear that Lochana really meant Tîvratara Dha, which he uses also in Sāranga.

We are told that such alteration of the ancient Scale was actually proposed by some theorists of the time of Srinivāsa[4]. But, there is no evidence to show that this proposal was ever carried into practice.

(e). Medieval and Modern Scales of Origin: The Vikrita notes of Lochana, mentioned above, though similar to those used in modern Hindusthānî music are not quite identical with them. The reason for this difference is that the modern Scale of Origin is different in the allocation of its Shruti-intervals from that of Lochana and other medieval writers, though strangely enough both of them are identified with the ancient Shadja Grāma. The difference in the allocation of the Shruti-intervals in the two Scales may be shewn thus :

Modern Shuddda Grāma :	4.	3.	2.	4.	4.	3.	2
Medieval Shuddha Grāma :	3.	2.	4.	4.	3.	2.	4

Some modern writers hold the view that this difference is due to the fact that in the modern Scale the Shrutis belonging to a note are placed above it and not below it as in the ancient Scale. But, this would be going directly against an ancient tradition which has been honoured continuously through long

4. In "Sangeeta" of June, 1931, p. 9, V.N. Bhatkhande writes as follows about Srinivāsa, author of Rāga-Tatva Vibodha : "There were in his time, it appears, some Pandits, who talked of admitting twenty-four srutis into the Scale and with reference to them he says

"चतुर्भिस्तौ सरौ प्रोक्तौ गनी द्वाभ्यां व्यवस्थितौ ।
चतुर्भिः पमधा युक्ता एवं श्रुतिविनिर्णयः ॥"

In the September (1931) number of the same journal, pp. 35-37, Rao Bahadur P.R. Bhandarkar of Indore expresses the opinion that Ahobala in his Sangîta Pārijāta admitted twenty-four distinct notes in a Scale of twenty-two Shrutis. About this supposed audatious feat of Ahobala the writer says : "Evidently the author had no courage to propound a theory of twenty-four Shrutis in opposition to the long cherished twenty-two". The above view of Bhandarkar is quite inconsistent with the author's own definition of Tîvra and Komala, as pointed out by the learned editor of the journal. According to this definition Komala Ga and Komala Ni, the two additional notes referred to by Bhandarkar, must be placed one Shruti below Shuddha Ga and Shuddha Ni respectively and Tîvra Ri and Tîvra Dha

ages. Before trying to find out how this change in the allocation of the Shruti-intervals was effected, we must find out the object of such change. That object obviously was to bring about a change in the mutual relationships of the notes. A comparison of the two Scales shows that the central notes (i.e. the Tonics) of the ancient Shadja Grāma were Sa and Ma, whereas these notes of the modern Shuddha Scale are Sa and Pa. Owing to this change of the Tonics and also the change in the positions of the Semitones (two-Shruti intervals) the modern Shuddha Grāma must be identified with the Primary First Scale or the Madhyama Grāma and not with the Primary Second Scale like the ancient Shadja Grāma, though the relative positions of the Shruti intervals are identical. The interval between Pa and Dha of the modern Scale, which is wrongly considered to be one of four Shrutis, is in reality one of three Shrutis. The identity of the modern Shuddha Grāma with the ancient Madhyama Grāma may be shown thus :—

Modern Shuddha Grāma	* Sa	Ra	Ga	Ma	* Pa	Da	Na	Sa
	4	3	2	4	3	4	2	
Madhyama Grāma	* N	S	R	G	* M	P	D	N
	4	3	2	4	3	4	2	

must be placed one Shruti above Ri and Dha respectively. So, it is inconceivable how Ahobala could have intended the notes Komala Ga and Komala Ni to be different from Tīvra Ri and Tīvra Dha and to be placed one Shruti below them. Ahobala nowhere mentioned the object of such a drastic change. Neither does Bhandarkar suggest any. The only purpose which might be served by the introduction of a Scale of twenty-four Shrutis is that it can be divided into twelve equal Semitones. But, that purpose cannot be served by the addition of the aforesaid two Shrutis. With these Shrutis the intervals of the Shuddha Scale stand thus :—

3. 3. 4. 4. 3. 3. 4

The two two-Shruti intervals are thus obliterated and the Scale becomes meaningless and useless. This Scale cannot in fact be divided into twelve equal Semitones of two Shrutis each. Such division would be possible if only the three-Shruti intervals were converted into four-Shruti ones, as shown above.

(f). Identity of modern Shuddha Grāma with Sādhārana Grāma of Shārngadeva and Kaishika Grāma of Kāshyapa : When the aforesaid change in the allocation of the Shruti-intervals of Shadja Grāma was first brought about it is impossible to say. That the Shadja Grāma had undergone this transformation before the time of Shārngadeva is evident from the remarkable fact that his Sādhārana Grāma is identical with modern Shuddha Grāma. Shārngadeva explains how this change was to be effected by his own ingenious process of Sādhārana, which is quite different from that of Bharata. This process has been explained in the last preceding chapter. That this Grāma was widely used in his time is evident from the great care with which he works it out and also from the fact that many of his Rāgas can be identified with modern Rāgas of same names only on the basis of this Grāma. It appears that this was a popular Scale of long standing in Shārngadeva's time. It must be identified with the Kaishika Grāma of Kāshyapa mentioned in Nāradîyā Shikshā, which at a later period gave rise to the Māyurî Mārjanā which was most popular in the time of Kālidāsa, as it appears from the following passage of his drama Mālavikāgnimitra :—

"मायूरी मदयति मार्जना मनांसि ।"

"The Māyurî Mārjanā intoxicates the minds (of men)" 1, 18. It must, however, be pointed that the Shruti arrangements of these Scales show that the significance of Shrutis was either forgotten or disregarded since so early period as that of the Shikshā and that tonality came to be determined by the positions of the Tonics and the Semitones (two-Shruti intervals). This will be evident from the Shruti arrangements of Kāshyapa's Kaishika Grāma and Shārngadeva's Sādhārana Grāma as shown below :—

Kāshyapa's Kaishika Grāma S R G M P D N S^1
3 4 2 3 4 4 2

Shārngadeva's Sādhārana Grāma S R G M P D N S^1
4 3 2 4 4 3 2

These Shruti arrangements which are in accordance with the descriptions given of these Grāmas, are those of Sādhāranakrita Madhyama Grāma and Ni-mode of Shadja Grāma with Sa as the initial. But, the facts that the positions of the Semitones are the same and that Sa and Pa are Tonics of both these Scales lead to the conclusion that they must be identified with the Sa-initial Ni-mode of Madhyama grāma, i.e., to say, the Primary First Scale. The Shruti arrangements in both the above Scales are, therefore, incorrect. The correct arrangement should be : 4. 3. 2. 4. 3. 4. 2. The Scale which they represent appears to have been the popular Scale of India through long ages, just like the Diatonic Major Scale of Europe, with which it is identical, although orthodox theorists always regarded the ancient Shadja grāma as the principal Scale or Scale of Origin of their musical system.

This disregard for the significance of the four-Shruti interval (Major Tone) and the three-Shruti interval (Minor Tone) continues upto the present day. As the sole concern of theorists since the introduction of Melas was a Scale of twelve notes divided into twelve equal Semitones, the distinction between the above two intervals were of no practical importance to them. The modern Shuddha Grāma may, therefore, be very well regarded as a Scale of twenty-four Shrutis distributed in the following way :—

4. 4. 2. 4. 4. 4. 2

It has been stated above that the Shuddha Grāma of Lochana Pandita may be similarly regarded as a Scale of twenty-four Shrutis divided as follows :—

4. 2. 4. 4. 4. 2. 4

It will be seen that the Semitones are placed between Ga and Ma and also between Ni and Sa in the modern Shuddha Scale, while they are placed between Ri and Ga and also between Dha and Ni in Lochana's Shuddha Scale. Owing to this difference in the positions of the Semitones in the two Scales, the Shuddha and the Vikrita positions of Ga and Ni are different in the medieval and modern systems. The term

Tîvratara used by Lochana is dispensed with in modern nomenclature, and the term Tîvra is substituted for it, as a note can have only one sharp position by raising it by a Semitone.

(g). Corresponding notes of Lochana and modern Hindusthānî music: The names of notes used by Lochana and the corresponding names of modern Hindusthānî music with their Semitonic Notation are shown below :—

	Lochana's Names	*Modern Names*	*Semitonic Notation*
1.	Sa	Sa	Sa
2.	Komala Ri	Komala Ri	Ro
3.	Shuddha Ri	Shuddha Ri	Ra
4.	Shuddha Ga	Komala Ga	Go
5.	Tîvratara Ga	Shuddha Ga	Ga
6.	Shuddha Ma	Shuddha Ma	Ma
7.	Tîvratara Ma	Tîvra Ma	Mi
8.	Pa	Pa	Pa
9.	Komala Dha	Komala Dha	Do
10.	Shuddha Dha	Shuddha Dha	Da
11.	Shuddha Ni	Komala Ni	No
12.	Tîvratara Ni	Shuddha Ni	Na

(h). Extraordinary Notes: The twelve notes of Semitonic intonation mentioned above are not sufficient for expressing all the Melas. Lochana Pandita devised two and Ahobala five extraordinary notes. These are not adequate for the aforesaid purpose. Eleven extraordinary notes together with the twelve ordinary ones are required for that purpose. The eleven extraordinary notes are coincident with nine of the ordinary notes. They include four double flat, one double sharp, two flat and four sharp notes. The corresponding notes are shown below.

		Coincident with			*Coincident with*
Double flats	Goo	Ra	Flats :	Mo	Ga
	Poo	Ma		Po	Mi
	Doo	Pa	Sharps :	Ri	Go
	Noo	Da		Gi	Ma
Double Sharp :	Mii	Pa		Pi	Do
				Di	No

The two notes Poo and Gi are coincident with the same note Ma and the two notes Doo and Mii are coincident with the same note Pa. This accounts for the number of the ordinary notes, with which the eleven extraordinary notes are coincident, being nine.

(i). **Representative Character of Melas:** Melas are representative in character, each Mela representing a Mode of a particular Scale. The notes constituting a Mela are not Just, as they are Semitonic in intonation. The fine distinctions between notes of the same degree in the Modes of different Scales are obliterated in the notes constituting the Melas representing those Modes. A Mela is, therefore, only an approximation of the Mode it represents. Melas are, nevertheless, of great importance in the field of practical music, not only because the modern Rāga system of India is based mainly on them, but also because a beginner or a common musician is incapable of appreciating the fine distinctions of the notes of the Modes, which only experts having a highly developed musical faculty and a well-trained ear can perceive. Two sets of notation are, therefore, required for music students; consisting of notes of Just and Semitonic intonations. As the Mela system is based on notes of Semitonic intonation, a beginner has to use the Semitonic Notation and to seek the aid of musical instruments tuned in notes of Semitonic temperament. An advanced student, who wants to develop his musical faculty and train his ears on proper lines, must be familiarised with notes of Just intonation and take the help of instruments capable of producing such notes. Acquaintance with these notes and aid of these instruments are also indispensable for accomplished musicians who want to test and ensure the accuracy of his musical knowledge[5].

(j). **The Common Initial Note of Melas is Sa:** Modes may be used in two different forms: Common-Tonic and

5. A scheme for a standardized Veena of this type has been given in Appendix B. Until such instruments are available instruments capable of producing fairly accurate notes may be constructed by following the procedure laid down in the introduction.

Common-Initial. Melas represent the Common-Initial forms of Modes. In these forms Modes are limited within an octave from a common initial note. Melas which represent these forms of Modes are, therefore, also similarly limited. Rāgas of Hindusthānî music are found to start almost invariably with the note Sa. The main theme called the Āsthāyî is confined within an octave from that note. Melas, on which Ragās are based must, therefore, start from the same note and be limited within an octave from it. In other words, the common initial note of all Melas is Sa. A Mela would change its character if it is made to start from any note other than Sa. A Rāga based on that Mela would, consequently, also change its character. The very purpose and significance of Melas would be frustrated if they are made to start from different notes. A Rāga would lose its character and individuality if it is made to start from different notes in different compositions of it. Every Rāga must, therefore, be made to start from the note Sa and confined within an octave from that note in its main theme, the Āsthāyî. Compositions of a Rāga are sometimes found to start from a note other than Sa. In such case the Mela proper for the Rāga is different from that customarily used in it. It should be so corrected as to make Sa the starting note. The Vikrita notes of the Mela in its corrected form would be different from those of the customary form. The name of the customary Mela would, therefore, have to be changed. In order to ascertain the Mela proper for a Rāga the octave essential for its Āsthāyî period must be definitely known. Where the notes used are found to exceed an octave, the notes which are non-essential for delineating the character of the Rāga must be considered to be redundant and left out in ascertaining the limit of the octave proper for the Rāga and the Mela used in it.

B. NUMBER OF MELAS : ONE HUNDRED AND FIVE.

The twenty tables appended to the seventh chapter contain one hundred and forty Modes, each table containing the seven Modes of a single Scale. One hundred and five Melas are sufficient for representing all these Modes. The five Primary

Scales being similar, the thirty-five Modes of these Scales can be represented by only seven Melas. Similarly, the First and the Fourth Secondary Scales being similar, the fourteen Modes of these two Scales can also be represented by only seven Melas. Twenty-eight Melas are, therefore, required for the thirty-five Modes of Secondary Scales. Seven Melas for the Primary Modes, twenty-eight for the Secondary Modes and seventy for the Modes of the ten Chromatic Scales make up a total of one hundred and five Melas. The number of Melas, modern and medieval, actually used in Northern India is thirty-seven and in Southern India forty-two. Eight Melas belong exclusively to the Northern system and thirteen to the Southern. The total number of Melas used in the whole of India is, therefore, fifty (37+13=42+8=50).

A table of Melas has been given below. It has been designated "The Perfect Scheme", in order to distinguish it from the existing schemes, which are incomplete and defective. Names have been deliberately eschewed, mainly because it is extremely difficult to coin names for such a large number of Melas. They cannot be named after Rāgas for the simple reason that Rāgas have not yet been constructed on many of these Melas. It would be almost impossible to remember such a large number of names, if they were coined fantastically. Melas have, therefore, been called after their characteristic Vikrita notes which have been termed "Signatures" or "Sānketikas" in the the present treatise. The serial numbers of these signatures will be of great help in ascertaining the Scales and the Modes which the Melas represent by reference to the table. The number of the Mode, which a Chromatic Mela represents, can be readily ascertained from its Serial Number by dividing it by the number 7. The remainder that is left by such division is the number of the Mode. If no remainder is left the number of the Mode is 7. For example, 93 divided by 7 leaves the remainder 2. So, the number of the Mode represented by Mela No. (93) is 2. Again, 56 divided by 7 leaves no remainder. Therefore, the number of the Mode representsd by Mela No. (56) is 7. The Amsas of a Chromatic Mela can thus be ascertained

from its Serial Number as the Amsas of the Mode of a particular number are fixed. Of the aforesaid examples the Amsas of Mela No. (93), Ro Goo Po No are Ma and No ; and those of Mela No. (56). Gi Mi No are Ra and Da.

C. NOMENCLATURE OF MELAS.

Before the Melas can be properly dealt with a method of nomenclature for Melas, which is calculated to bring about an uniformity of names in both the schools of Indian music, must be found out. The custom of calling Melas after Rāgas is mainly responsible for the absence of such uniformity. This custom has been the source of much confusion and dispute among musicians. Different medieval authors have not only called the same Mela after different Rāgas, but called different Melas after the same Rāga. The greatest anomaly is found in the case of Primary Melas. A single Primary Mela can be made to represent a Mode of any one of the five Primary Scales, which are similar to each other. It is, therefore, absurd to call a Primary Mela after a particular Rāga, which must be based on only one of these Scales.

(a). Signature (Sānketika) : Under these circumstances, the best method of nomenclature is to call a Mela by its characteristic Vikrita notes. Thus : Ni Komala Mela, Ni and Ga Komala Mela, Ma Tīvra Mela and so on. For Semitonic Notation these should be called : No Mela, No-Go-Mela, Mi Mela and so on. A similar method was, as shown below, adopted by Hridaya Nārāyana Deva in his Hridaya Prakasha. This method for naming Melas has been followed in the present treatise.

The Primary Melas can, according to this method, be named and arranged in the following manner. The Sa-Mode of our Scale of Origin, which has no Vikrita notes in it, is to be called the "Shuddha Mela". The mode of Pa, which is the fifth note above Sa, has only one Vikrita note, viz., No. It is, therefore, to be called No Mela. The mode of Ra, which is fifth above Pa, has one other Vikrita note added to it over and above the Vikrita note of Pa-Mode, viz., Go. The Ra-Mode is, therefore,

to be called No Go Mela. Similarly, the Mode of every note has one Vikrita note added to it over and above those of the Mode of the note which is fifth below it. Accordingly, the Da-Mode, the Ga-Mode, the Na-Mode and the Ma-Mode have the Vikrita notes Do, Ro, Po and So added to them respectively over and above the Vikrita notes of the preceding Mode. These Modes are, therefore, to be called No Go Do Mela, No Go Do Ro Mela, No Go Do Ro Po Mela and No Go Do Ro Po So Mela respectively. But, as in a system of Common-Initial Modes the initial note must be same, we must raise all the seven notes of the Ma-Mode by a Semitone, thus making the initial note So and the other five flat notes natural and the one natural note Ma sharp. Thus, the Ma-Mode must be called Mi Mela. The characteristic Vikrita notes, after which a Mela is to be named, will be called its "Signature" ("Sānketika"). The seven Primary Melas are given below :

Primary Melas.

	Mode	*Signature*
1.	Sa	Shuddha
2.	Pa	No
3.	Ra	No Go
4.	Da	No Go Do
5.	Ga	No Go Do Ro
6.	Na	No Go Do Ro Po
7.	Ma	Mi

All these Primary Melas except that which represents the Na-Mode have been mentioned by most of the medieval writers on music. The Secondary and Chromatic Melas of these authors may be similarly named by their Vikrita notes. Modes of Chromatic Scales are expressed by means of double notes of the same name in Just Notation. These double notes are apt to be misunderstood as alternative notes for ascent and descent, though they are intended for use one after another both in ascent and in descent. The custom amongst musicians of using different names for these double notes is, therefore, very helpful to beginners and uninformed votaries of music. For example, Si in the double note Sa Si is, according to this custom,

called Ro ; and Po in Po Pa is called Mi. Double flat and double sharp notes have to be sometimes used in order to avoid double notes. Double flat has to be expressed by double o. i. e, oo and double sharp by double i, i.e., ii. Thus the tetrachord Sa Rŏ Ră Ma used in Chrom. B, V, 5 has to be written Sa Ro Goo Ma in Semitonic Notation, and the tetrachord Ma Do Da Sa[1] has to be written Ma Do Noo Sa[1]. Similarly, the tetrachord Ga Pa Pi Da found in Chrom. A, IV, 6 has to be written Ga Mii Pi Da in Semitonic Notation.

D. THE PERFECT SCHEME OF MELAS

(Purna Mela-Prastāra).

Serial Number	*Signature*	*Scale and Mode represented.*
(1)	Shuddha	Prim. I, 1 ; II, 4 ; III, 7 ; IV, 3 ; V, 7
(2)	No	Prim. I, 5 ; II, 1 ; III, 4 ; IV, 7 ; V, 4
(3)	No Go	Prim. I, 2 ; II, 5 ; III, 1 ; IV, 4 ; V, 1
(4)	No Go Do	Prim. I, 6 ; II, 2 ; III, 5 : IV, 1 ; V, 5
(5)	No Go Do Ro	Prim. I, 3 ; II, 6 III, 2 ; IV, 5 ; V, 2
(6)	No Go Do Ro Po	Prim. I, 7 ; II, 3 : III, 6 ; IV, 2 ; V, 6
(7)	Mi	Prim. I, 4 ; II, 7 ; III, 3 ; IV, 6 ; V, 3
(8)	Go	Sec. I, 1 ; IV, 4
(9)	Ro Go No	Sec. I, 2 ; IV, 5
(10)	Mi Pi	Sec. I, 3 ; IV, 6
(11)	Mi No	Sec. I, 4 ; IV, 7
(12)	Do No	Sec. I, 5 ; IV, 1
(13)	Go Po Do No	Sec. I, 6 ; IV, 2
(14)	Ro Go Mo Po Do No	Sec. I, 7 ; IV, 3
(15)	Go Do	Sec. II, 1
(16)	Ro Go Po No	Sec. II, 2
(17)	Pi	Sec. II, 3
(18)	Go Mi No	Sec. II, 4
(19)	Ro Do No	Sec. II, 5
(20)	Ri Mi	Sec. II, 6
(21)	Ro Go Mo Po Do Noo	Sec. II, 7

Serial Number	*Signature*	*Scale and Mode represented*
(22)	Do	Sec. III, 1
(23)	Go Po No	Sec. III, 2
(24)	Ro Go Mo Do No	Sec. III, 3
(25)	Go Mi	Sec. III, 4
(26)	Ro No	Sec. III, 5
(27)	Ri Mi Pi	Sec. III, 6
(28)	Ro Go Po Do Noo	Sec. III, 7
(29)	Ro Do	Sec. V, 1
(30)	Ri Mi Di	Sec. V, 2
(31)	Ro Go Mo Do Noo	Sec. V, 3
(32)	Go Mi Do	Sec. V, 4
(33)	Ro Po No	Sec. V, 5
(34)	Ri Pi	Sec. V, 6
(35)	Ro Goo Po Do Noo	Sec. V, 7
(36)	Ri	Chrom. A, I, 1
(37)	Ro Goo Mo Po Do Noo	Chrom. A. I, 3a
(38)	Ro Go Do	Chrom. A, I, 3b
(39)	Mi Di	Chrom. A, I, 4
(40)	Pi No	Chrom. A, I, 5
(41)	Go Mi Do No	Chrom. A, I, 6
(42)	Ro Po Do No	Chrom. A, I, 7
(43)	Ri No	Chrom. A, II, 1
(44)	Ro Goo Mo Po Doo Noo	Chrom. A, II, 3a
(45)	Ro Go Po Do	Chrom. A, II, 3b
(46)	Di	Chrom. A, II, 4
(47)	Go Pi No	Chrom. A, II, 5
(48)	Ro Go Mi Do No	Chrom. A, II, 6
(49)	Gi Mi	Chrom. A, II, 7
(50)	Ri Do No	Chrom. A, III, 1
(51)	Ro Goo Mo Poo Doo Noo	Chrom. A, III, 3a
(52)	Ro Go Mo Po Do	Chrom. A, III, 3b
(53)	Go Di	Chrom. A, III, 4
(54)	Ro Go Pi No	Chrom. A, III, 5
(55)	Mii Pi	Chrom. A, III, 6
(56)	Gi Mi No	Chrom. A, III, 7
(57)	Ri Do	Chrom. A, IV, 1
(58)	Ro Goo Mo Poo Do Noo	Chrom. A, IV, 3a
(59)	Ro Go Mo Do	Chrom. A, IV, 3b
(60)	Go Mi Di	Chrom. A, IV. 4
(61)	Ro Pi No	Chrom. A, IV, 5
(62)	Ri Mii Pi	Chrom. A, IV, 6
(63)	Ro Po Do Noo	Chrom. A, IV, 7

Serial Number	*Signature*	*Scale and Mode represented*
(64)	Ri Di	Chrom. A, V, 1
(65)	Ro Goo Mo Do Noo	Chrom. A, V, 3a
(66)	Ro Go Mi Do	Chrom. A, V, 3b
(67)	Gi Mi Di	Chrom. A, V, 4
(68)	Ri Pi No	Chrom. A, V, 5
(69)	Ro Goo Po Doo Noo	Chrom. A, V, 7a
(70)	Ro Po Do	Chrom. A, V, 7b
(71)	Go Mo	Chrom. B. I, 1
(72)	Ro Goo No	Chrom. B, I, 2
(73)	Ro Mi Pi	Chrom. B, I, 3a
(74)	Ri Gi Mii Pi Di	Chrom. B, I, 3b
(75)	Do Noo	Chrom, B, I, 5
(76)	Go Po Doo No	Chrom, B, I, 6
(77)	Ro Go Mo Poo Do No	Chrom, B, I, 7
(78)	Go Mo No	Chrom. B, II, 1
(79)	Ro Goo Do No	Chrom. B, II, 2
(80)	Ro Mi	Chrom. B, II, 3a
(81)	Ri Gi Mi Pi Di	Chrom. B, II, 3b
(82)	Go Do Noo	Chrom. B, II, 5
(83)	Ro Go Po Doo No	Chrom. B. II, 6
(84)	Po	Chrom. B, II, 7
(85)	Go Mo Do No	Chrom. B, III, 1
(86)	Ro Goo Po Do No	Chrom. B, III, 2
(87)	Ro	Chrom. B, III, 3a
(88)	Ri Mi Pi Di	Chrom. B, III, 3b
(89)	Ro Go Do Noo	Chrom. B, III, 5
(90)	Mi Do	Chrom. B, III, 6
(91)	Po No	Chrom. B, III, 7
(92)	Go Mo Do	Chrom. B, IV, 1
(93)	Ro Goo Po No	Chrom. B, IV, 2
(94)	Ro Pi	Chrom. B, IV, 3a
(95)	Ri Mii Pi Di	Chrom. B, IV, 3b
(96)	Ro Do Noo	Chrom. B, IV, 5
(97)	Ri Mi Do	Chrom. B, IV, 6
(98)	Ro Go Mo Poo Do Noo	Chrom. B, IV, 7
(99)	Go Mo Do Noo	Chrom. B, V, 1
(100)	Ro Goo Po Doo No.	Chrom. B, V, 2
(101)	Ro Po	Chrom. B, V, 3a
(102)	Ri Pi Di	Chrom. B, V, 3b
(103)	Ro Goo Do Noo	Chrom. B, V, 5
(104)	Ro Mi Do	Chrom. B, V, 6a
(105)	Ri Gi Mi Di	Chrom. B, V, 6b

II.

MELAS OF NORTHERN INDIA.

A. LOCHANA IN RĀGA TARANGINÎ.

Lochana mentions altogether twelve Samsthānas (Melas) named as follows :—

1.	Bhairavî	7.	Gourî
2.	Kedāra	8.	Dhanāshrî
3.	Todî	9.	Purvā
4.	Iman	10.	Megha
5.	Karnāta	11.	Sāranga
6.	Mukhārî	12.	Deepaka

The author does not explain the last of these Samsthānas, which had become either obsolete or ambiguous in its character. The first six of these are identifiable with Modes of the Primary Scales. The Vikrita notes used in these are as follows :—

Samsthāna	*Vikrita Notes*
1. Bhairavî	Nil
2. Kedāra	Tîvratara Ga & Tîvratara Ni
3. Todî	Komala Ri & Komala Dha
4. Iman	Tîvratara Ga, Tîvratara Ma and Tîvratara Ni
5. Karnāta	Tîvratara Ga
6. Mukhārî	Komala Dha.

These six Samsthānas of Lochana are identical with modern Melas of Rāgas Kāfi, Vilāval, Bhairavî, Kalyāna, Khāmāj and Jaunpurî respectively. These Primary Melas of modern Hindusthānî music and the corresponding Samsthānas of Lochana Pandita with the notes constituting them in Semitonic Notation are shown below for comparison :—

Modern Melas	*Lochana's Samsthānas*	*Semitonic Notes*
1. Vilāval	Kedāra	Sa Ra Ga Ma Pa Da Na Sa^1
2. Kāfi	Bhaîravî	Sa Ra Go Ma Pa Da No Sa^1
3. Bhairavî	Todî	Sa Ro Go Ma Pa Do No Sa^1
4. Kalyāna	Iman	Sa Ra Ga Mi Pa Da Na Sa^1
5. Khāmāj	Karnāta	Sa Ra Ga Ma Pa Da No Sa^1
6. Jaunpurî	Mukhārî	Sa Ra Go Ma Pa Do No Sa^1

It will be observed that the Samsthāna which was called Bhairavî in Lochana's time is called Kāfi in modern times, and the Mela which is called Bhairavî now was called Todî in his time. In Southern India the latter is still called Todî.

(a). Formulae for differentiating five groups of Scales : The above-mentioned six being the only Samsthānas of Lochana which can be identified with Modes of Primary Scales, the remaining five described by him, if capable of rational explanation, must be identified with either Modes of Secondary Scales or those of Chromatic Scales. As in the present and the following two chapters many Samsthānas or Melas belonging to five different groups of Scales have to be dealt with, and as it is not possible to ascertain at first sight the group to which one of these Melas belongs, five formulæ have been laid down in order to easily ascertain the group to which a Mela belongs and then to find out the Scale and the Mode by consulting the Mode Tables given at the end of the seventh chapter. For this purpose, it has been assumed that all Melas, either old or modern, have been expressed by means of the twelve notes of Semitonic equal temperament, and that the intervals between consecutive notes of these Melas are capable of being expressed in terms of Semitones. Roughly speaking, altogether three kinds of intervals between consecutive notes of these Melas are to be found. These are : (1) Semitone, (2) Tone, consisting of two Semitones and (3) Large Tone, consisting of three Semitones. Let these intervals be indicated by the letters S,T and L respectively. The Primary Scales and the First and the Fourth Secondary Scales contain only Tones and Semitones. Large Tones are to be found only in Chromatic Scales and Secondary Second, Third and Fifth Scales. Although, in Semitonic Notation the Large Tones of Secondary Scales and those of Chromatic Scales appear alike, they are in fact different intervals. The Large Tone of Secondary Scales is a dissonant interval (Shrutis-5, Anushrutis-12, and ratio $\frac{75}{64}$), while that of Chromatic Scales is the consonant interval Minor Third (Shrutis-6, Anushrutis-14, ratio $\frac{6}{5}$). The Large Tones of the above-mentioned three Secondary Scales, therefore, serve a purpose

different from that of Large Tones of Chromatic Scales. In these Secondary Scales they go to form the perfect Secondary Tetrachord, which is represented by the intervals : 2. 5. 2. in Shrutis or 5. 12. 5 in Anushrutis. In Semitonic temperament they will appear as S. L. S. Large Tones occur in the perfect Ascending and Descending Pentachords which differentiate the two groups of Chromatic Scales from each other and also from other Scales. The Ascending Pentachord is represented by 6. 1. 2. 4 in Shrutis and by 14.3. 5. 9 in Anushrutis. The Descending Pentachord is represented by 4. 2. 1, 6 in Shrutis and by 9. 5. 3. 14 in Anushrutis. The Small Semitone of 3 Anushrutis (ratio $\frac{25}{24}$) is represented by one Shruti. In Semitonic temperament these pentachords would appear as L. S. S. T and T. S. S. L respectively. A Semitone is found either below the former or above the latter pentachord in some of the Chromatic Scales, thus making the combination S. L. S., which is apparently equivalent to that of the Secondary Tetrachord given above. In order to avoid the confusion arising out of this similarity we shall add below this Tetrachord a tone (T) which is invariably found in that position in all the above-mentioned three Secondary Scales. The distinctive feature of these Scales would thus be the combination T. S. L. S. which gives an imperfect pentachord. The formulæ suggested for distinguishing different groups of Scales from each other are as follows :

Group	Scales	Intervals of Characteristic Pentachord	No.
I.	Primary	T. T. T. S.	(1)
II.	Secondary, First, and Fourth	T. T. T. T.	(2)
III.	Secondary Second, Third and Fifth	T. S. L. S.	(3)
IV.	Chromatic Ascending	L. S. S. T.	(4)
V.	Chromatic Descending	T. S. S. L.	(5)

The Group of Scales to which a Mela belongs can be ascertained from the five Characteristic Pentachords given above. In order to find out whether the intervals of any of these pentachords exist in a Mela we may have sometimes to extend the

Mela to two octaves. If the Mela be correct in tonality, it must be identifiable with a Mode of one of the Scales in the group to which it is found to belong. The group being known, the Scale and the Mode can be ascertained from the Mode Tables of the seventh chapter.

(b). Five Melas of Lochana Examined: The five Samsthānas of Lochana, which do not belong to the Primary Scales, have the following Vikrita Notes :—

1.	Gourî	Komala Ri, Tîvratara Ga, Komala Dha and Tîvratara Ni
2.	Dhanāshrî	Komala Ri, Tîvratara Ga, Tîvratara Ma, Komala Dha and Tîvratara Ni.
3.	Purvā	Tîvratara Ga, Tîvratara Ma, Tîvratara Dha and Tivratara Ni.
4.	Megha	Tîvratara Ga, Tîvratara Dha and Tivratara Ni.
5.	Sāranga	Atitîvratama Ga, Tîvratara Ma, Tîvratara Dha and Tîvratara Ni.

The two notes Tîvratara Dha and Atitîvratama Ga, which, as we have mentioned above, are coincident with Shuddha Ni and Shuddha Ma, are, it will be seen presently, extraordinary notes required especially for the Chromatic Scales.

The Shruti-intervals of these Samsthānas according to the notes given above are as follows :—

1.	Gourî	2.	5.	2.	4.	2.	5.	2
2.	Dhanāshrî	2.	5.	4.	2.	2.	5.	2
3.	Purvā	3.	4.	4.	2.	5.	2.	2
4,	Megha	3.	4.	2.	4.	5.	2.	2
5.	Sāranga	3.	6.	2.	2.	5.	2.	2

In Gourî we find the combination 4. 2. 5. 2, which is the Characteristic Pentachord No. (3) indicated by the letters T. S. L. S. This Samsthāna, therefore, belongs to Group III of Secondary Scales. The large Tone in it is a dissonant interval and correctly represented by 5 Shrutis (=12 Anushrutis). If we now consult the Tables of Secondary Scales, we will find Gourî to be identical with the original form or First Mode of

Secondary Fifth Scale. In Just Notation it is to be written thus :—

Gourî Samsthāna of Lochana in Just Notation :

*Sa	Rŏ	Ga	*Ma	*Pa	Do	Na	*Sa[1]	—Sec. V, I
5	12	5	9	5	12	5		

In Semitonic Notation the second note is written Ro, omitting the comma sign. This Samsthāna is identical with the Bhairava Mela of modern Hindusthānî music and Māyāmālava Gaula Mela of South Indian music. It is considered as the Adi Rāga (original Rāga) in some schools of Hindusthānî music and holds a prominent position in South Indian Music also.

The combination 4. 2. 2. 5 in Dhanāshrî can be identified with Characteristic Pentachord No. (5) indicated by T. S. S. L. The Samsthāna, therefore, belongs to Group V, Descending Chromatic Scales. The two Large Tones found in it should, accordingly, be taken to be consonant Minor Thirds, represented by 6 Shrutis. If we take one Shruti from the preceding Semitone and add it to each of the Large Tones we get the intervals :

1. 6. 4. 2. 1. 6. 2. The Semitone represented by one Shruti is the Small Semitone ($\frac{25}{24}$), which is the difference between a Major and a Minor Third. So corrected Dhanāshri will be found to be identical with Mode 6a of Chromatic Fifth Scale, Group B. In Just Notation it should be written thus :

Dhanāshrî Samsthāna of Lochana in Just Notation :

Sa	Si	*Ga	Mî	Pa	Pi	*Na	Sa[1]	Chrom. B. V, 6a
3	14	9	5	3	14	5		

In Semitonic Notation the notes Si and Pi are written as Ro and Do respectively. This Samsthāna is identicial with the Mela of Puriyā Dhanāshrî in modern Hindusthānî music. This is also the Mela of modern Shrî Rāga which is quite different from Kallinātha's Shrî Rāga explained in last preceding chapter. Bhatkhande calls it Purvî Mela, although there are two different views regarding the sixth note of Purvî Rāga. In modern South Indian music it is known as Kāmavardhanî Mela, numbered 53 in the Mela-Kartā scheme.

If the three Samsthānas Purvā, Megha and Sāranga are extended they will be found to contain the combination 5. 2. 2. 3. These Shruti intervals are to be found in Characteristic Pentachord No. (4) indicated by L. S. S. T. The aforesaid three Melas are, therefore, included in Group IV, Ascending Chromatic Scales, and the Large Tones in them must be taken as consonant Minor Thirds. If we take one Shruti each from the second and the sixth intervals and add it to the first and the fifth intervals respectively of Purvā and Megha, we get the combinations :

Purvā	4. 3. 4. 2.	6. 1. 2. 4
Megha	4. 3. 2. 4.	6. 1. 2. 4

The octaves have been extended in order to show the chromatic pentachords which have been marked by braces overhead. The tetrachords have also been marked by braces. The pentachord and the tetrachord of Purvā will be found to be perfect. But, the tetrachord of Megha is ambiguous owing to the inherent defect of the Shruti system. To make this tetrachord perfect the two Tones must be Minor and the Semitone between them Major (6 Anushrutis). Expressed by Anushrutis the intervals of Megha in its correct form will stand thus :

9. 8. 6. 8. 14 3. 5. 9

If we now consult the tables, we shall find Purvā to be identical with the Fourth Mode of First Chromatic Scale, Group A, and Megha with the Fourth Mode of Second Chromatic Scale, Group A. In Just Notation these Samsthānas would stand thus :—

Purvā Samsthāna of Lochana in Just Notation :

Sa	*Ra	Ga	Mî	*Pa	No	Na	Sa[1]	Chrom. A, I, 4
9	8	9	5	14	3	5		

Megha Samsthāna of Lochana in Just Notation :

Sa	*Ra	Ga	Mâ	*Pa	No	Na	Sa[1]	Chrom. A, II, 4
9	8	6	8	14	3	5		

In Semitonic Notation double notes are not used. The note No may, therefore, be considered as sharp Dha and written Di.

There are no Melas in modern Hindusthānî music that can be identified with Purvā and Megha. South Indian Mela No.66 named Chitrāmbarî and No. 30 named Nāgānandanî are identical with these. But, we have no evidence before us to show that these Melas were actually used in any Rāga. They are not to be found in Svaramela Kalānidhi of Rāmāmātya or any work of any other South Indian writer who came after him, except Rāga Manjarî of Vitthala which contains a Mela called Karnāta which is equivalent to Megha of Lochana.

It has been shown that Sāranga of Lochana is included in the ascending group of Chromatic Scales. The two Large Tones in it, one consisting of 6 Shrutis and the other of 5 Shrutis are, therefore, both to be considered as consonant Minor Thirds of 6 Shrutis. If one Shruti each be taken from the second, the third and the sixth intervals and added to the first, the second, and the fifth intervals respectively, and the octave be extended by one note, we get: 4. 6. 1. 2. 6. 1. 2. 4. This Mode contains a perfect ascending Chromatic Tetrachord and a perfect ascending Chromatic Pentachord which are marked by braces overhead. On consulting the tables it will be found to be identical with the Fourth Mode of Chromatic Fifth Scale, Group A. In Just Notation it should be written thus :—

Sāranga Samsthāna of Lochana
in Just Notation :

Sa	*Ra	Mâ	Mî	*Pa	No	Na	Sa^1	Chrom. A, V, 4
9	14	3	5	14	3	5		

This Mela can be arrived at by combining Purvâ and Megha after omitting their Ga. It is in its origin a combination of two pentatonic Modes both of which omit Ga and Dha. These Modes are used in two kinds of Sārangas of modern Hindusthānî music. These are the Madhamād and the Noor Sārangas, which are sung in the following pentatonic Melas :

Madhamād Sāranga	Sa	*Ra	×	Mâ	*Pa	×	No	Sa^1-Prim. IV, 4
Noor Sāranga	Sa	*Ra	×	Mî	*Pa	×	Na	Sa^1-Prim. I, 4

Sāranga of Lochana is a remarkable Mela, as it contains an extraordinary note (Atitîvratama Ga) which is not used in any other Mela.

(c). Eleven correct Melas of Lochana :

The eleven correct Melas (Samsthānas) of Lochana together with the Vikrita notes of the Primary Melas and Scales and Modes of the Secondary and the Chromatic Melas are shown below :—

Melas of Lochana.

1.	Kedāra	Shuddha Notes
2.	Karnāta	No
3.	Bhairavî	No Go
4.	Mukhārî	No Go Do
5.	Todî	No Go Do Ro
6.	Iman	Mi
7.	Gourî	Sec. V, 1
8.	Purvā	Chrom. A, I, 4.
9.	Megha	Chrom. A. II, 4.
10.	Sāranga	Chrom. A, V, 4.
11.	Dhanāshrî	Chrom. B, V, 6a

B. VITTHALA IN RĀGA MĀLĀ

There are two books named Rāga Mālā and Rāga Mānjarî, written by the same author Vitthala. The Scale of Origin used in these two books is that of Southern India. This fact shows that the author was a South Indian theorist. But, the author leaves us in no doubt that in Rāga Mālā he deals with the Northern System of Music of his time, inasmuch as he adopts the peculiarly northern method of classifying Rāgās into six groups, each group consisting of a male Rāga and his wives and sons. That Vitthala wrote Rāga Malā especially for the Northern School of Music is further shown by the fact that Mukhārî, the peculiarly South Indian Rāga based on the Scale of Origin, finds no place in this book. In Rāga Manjarî Vitthala deals with the South Indian System of Music following the usual south Indian method of classifying Rāgas into Janaka Rāgas or Melas and Janya Rāgas. In Rāga Mālā the author gives us no information about his identity or the time when the book was written. In Rāga Manjarî

the author describes himself as son of "Demaka Jananî" (mother Demaka)[6] and tells us that he belonged to the court of two brother chiefs named Mādhava Singha and Māna Singha, who were great warriors and were like the two arms of emperor Akbar (1556—1605 A. D.)[7].

Another book named Sadrāga Chandrodaya was written by an author who describes himself as Pundarîka Vitthala of Karnāta race[8]. In the last verse of the book he states that he is a son of a renowned person named Vitthala, whom he describes as Shri Vitthala Arya[9]. Elsewhere in the book he refers to him as an authority on musical theory and calls him "Budha (wise) Vitthala". From these facts we may safely infer that Pundarika's father was the renowned author of Rāga Mālā and Rāga Manjarî. The word "Vitthala" was evidently the family surname. In order to distinguish between the father and the son we shall call the former "Vitthala" and the latter "Pundarîka" without the surname. Pundarîka states that he belongs to the court of Burhan Khan, the chief of Khandesh[10]. Mr. Stanley Lanepoole tells us in his book "The Muhammedan dynasties" that Khāndesh was subjugated by emperor Akbar in the year 1562 A.D. and incorporated

6 "देमकजननी-निजसुत-विट्ठलकृत-रागमंजरिकेयं ॥"
Rāga Manjarî.

7 "तस्य द्वौ तनयौ प्रभूतविनयौ शूरौ महाधार्मिकौ ।
जातौ पंक्तिरथात्मजौ त्वकबर-क्षौणीपतेः द्वौ भुजौ ॥
सिंहौ माधव-मान-पूर्वपदकौ संग्रामदक्षावुभौ ॥"
Rāga Manjarî

8 "कर्णाटजातीय-पुंडरीक-विठ्ठल ।"

9 "तत्र श्रीविठ्ठलार्योऽभवदमितयशा स्तद्गुणाख्या तु तस्यै
तत्-सूनो रागचंद्रोदय इति च भजन् कैरवानां मुदेऽस्तु ॥"
Sadrāga Chandrodaya

10. "श्रीमद्दक्षिणदिङ्मुखस्य तिलके श्रीस्वानिदेशे शुभे ।
तत्र श्रीबुरहानखान-नृपतिः संगीतमाकर्णयत् ॥"
Sadrāga Chandradaya

in the Mughal empire in the year 1599 A.D.[11]. From the last verse of Pundarīka's work referred to above it is clear that Vitthala was dead before he wrote his book. It, therefore, appears that Vitthala wrote his two books within the first half of the reign of Akbar, i.e. to say, in the third quarter of the sixteenth century A.D. and Pundarīka wrote his book within the second half of Akbar's reign, i.e., in the last quarter of that century.

That the author who wrote Rāga Mālā and Rāga Manjarī was not the author of Sadrāga Chandrodaya, is evident from the fact that the scheme of Vikrita notes used in the first two books is quite different from that used in the third. Each of these schemes is quite original and not found in any other work.[12]

(a). Vitthala's Vikrita notes based on South Indian Scale of Origin : The scheme of Vikrita notes devised by Vitthala for expressing his Melas is based on the South Indian Scale of Origin, which was formerly called Mukhārī and is now called Kānakāngī. This Scale, though the same in form as Lochana's Scale of Origin, is quite different from it in significance. The Vikrita notes of these two authors are consequently different not only in their names but also their relative positions. The difference between the two schemes cannot be understood before the significance of South Indian Scale of Origin is explained. This explanation will be given in the next chapter, in which South Indian Melas will be dealt with. It is,

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11. "Akbar took Burhanpur, the capital of Khāndesh and received the homage of its king in 1562 A.D. But, Khāndesh was not fully incorporated in the Moghul empire until 1599 A.D. when Ashirgarh fell in a six month's siege".
"The Muhammedan dynasties", p. 315.

12. On the grounds set forth above we cannot agree with Bhatkhande in his opinion expressed in "Sangeeta" of of September, 1931, page 2. that the above mentioned three books were all written by the same author. Bhatkhande assumes that the author of Sadrāga Chandrodaya first served under Burhan Khan and subsequently after the fall of Asirgarh in 1599 A. D. took service under Mādhava Singha and Māna Singha. We do not think there is any occasion for such assumption.

therefore, not possible to explain the Melas of Rāga Mālā in the present chapter. Only the names of the Melas, the Semitonic Vikrita notes of the Primary Melas, and the Scales and the Modes which the Secondary and Chromatic Melas stand for will be given here.

In Rāga Mālā Vitthala deals with sixty-six Rāgas, which he divides into six groups of eleven, each group containing one Rāga, his five wives and five sons. The wives are not called Rāginîs, which word does not appear to have yet come into existence. The names of the wives are, however, all in the feminine gender like the ancient Bhāshās. In the description of each Rāga, the author gives the Vikrita notes used in it or refers to the Mela of another Rāga and also gives a descriptive picture of its presiding deity just like a northerm theorist. He does not give a list of his Melas ; nor does he call them by the names of particular Rāgas. Altogether eighteen Melas have been found out from his descriptions of the Rāgas. Six of these Melas have been called after the six Rāgas, Natta Nārayana, Shrî Rāga, Hindola, Shuddha Bhairava, Deshikāra and Shuddha Nāta. Five Melas have been called by the names of those Vanitās (wives) or Putras (sons) which are identical or nearly so in name with five Melas of Rāga Manjarî. These are Gaudî, Ābhîrî (Āhîrî of Rāga Manjarī), Hāmîra Nāta (Hāmîra of Rāga Manjarî), Sāranga and Kalyāna. The two Melas Deshākshî and Nāda Rāmakrî are identical with Melas of the same names of Sadrāga Chandrodaya, and the Mela Karnāta corresponds to Karnāta-Gauda of the latter work. The Mela Devakrî differs only in one note from the Mela of the same name of Sadrāga Chandrodaya. The Mela Bhairava corresponds to Mela Hijej of Sadrāga Chandrodaya and the Mela Gurjarî corresponds to Mela Deshakshî of Rāga Manjari, which is different from Deshākshî of Rāga Mālā. The Mela Deshî admits of no rational explanation.

(b). Seventeen correct Melas of Vitthala's Rāga Mālā :

The seventeen correct Melas of Vitthala's Rāga Mālā with the Vikrita notes of the Primary Melas in Semitonic Notation and

Scales and Modes of the Secondary and Chromatic Melas are given below :

Melas of Vitthala's Rāga Mālā.

1.	Natta Nārāyana	...	Shuddha Notes
2.	Shrî Rāga	...	No Go
3.	Hindola	...	No Go Do
4.	Shuddha Bhairava	...	No Go Do Ro
5.	Devakrî	...	Mi
6.	Ābhîrî	...	Sec. II, 1.
7,	Bhairava	...	Sec. II, 5.
8.	Hāmîra Nāta	...	Sec. III, 1.
9.	Gaudî	...	Sec. V, 1.
10.	Deshākshî	...	Chrom. A, I, 1.
11.	Nāda Rāmakrî	...	Chrom. A, I, 3b.
12.	Karnāta	...	Chrom A. II, 1.
13.	Gurjarî	...	Chrom. A, III, 1.
14.	Shuddha Nāta	...	Chrom. A, V, 1.
15.	Sāranga	...	Chrom. A, V, 4.
16.	Kalyāna	...	Chrom. B, IV, 6.
17.	Deshikāra	...	Chrom. B. V, 6a.

A comparison of the lists of Melas of Vitthala and Lochana will show that the eight Melas of Vitthala : Natta Nārāyana, Shrî Rāga, Hindola, Shuddha Bhairava, Devakrî, Gaudî, Sāranga and Deshikāra are identical with the eight Melas of Lochdna : Kedāra, Bhairavî, Mukhārî, Todî, Iman, Gaurî, Sāranga, and Dhanāshri respectively. Vitthala's list contains no Melas corresponding to Lochana's Melas : Karnāta, Purvā and Megha. On the other hand, Lochana's list contains no Melas corresponding to nine Melas of Vitthala, of which three are Secondary and six Chromatic.

Of these nine new Melas of Rāga Mālā the three Secondary Melas, Ābhîrî, Bhairava and Hāmîra Nāta are identical with Melas Ābhîrikā of Ahobala, Vasanta Bhairavī of Rāmāmātya and Hāmîra of Vitthala's Rāga Manjarî respectively ; and the six Chromatic Melas Deshākshî, Nāda Rāmakrī, Karnāta, Gurjarî, Shuddha Nātā and Kalyāna are identical with the Melas Deshākshî of Rāmāmātya, Auttarā Gurjarî of Ahobala, Kannada Gaula of Rāmāmātya, Deshākshî of Vitthala's Rāga Manjarî, Shuddha Nāta of Rāmāmātya and Kalyāna of Vitthala's Rāga Manjarî. The structure of these nine Melas

of Rāga Mālā will be understood when the above mentioned corresponding Melas will be explained.

C. HRIDAYA NĀRĀYANA'S CLASSIFICATION OF MELAS.

Excepting Vitthala all writers on the Northern System of Indian music who came after Lochana, substantially followed his method of treatment. The Scale of Origin and the Vikrita notes based on it were almost the same for all these writers. Hridaya Nārāyana Deva, King of Gadā Desha, who wrote his two books named Hridayakautuka and Hridaya Prakāsha about 1660 A.D, faithfully followed Lochana in almost every respect. Like him Hridaya gives a list of twelve Samsthānas, which he calls Melas. The names of the Melas are the same, the only difference being that he substitutes Hridaya Ramā for Deepaka. This new Mela which he claims to be his own creation does not admit of any rational explanation. It is, therefore, as much useless as Deepaka, which Lochana leaves unexplained. Hridaya Nārāyana's method of classifying and designating the Melas in his Hridaya Prakāsha is very interesting. He first divides them into different classes according to the numbers of Vikrita notes used in them and then specifies each according to the character of the Vikrita notes. Thus :—

I.	Shuddha Svara Mela	...	Bhairavî
II.	Melas with one Vikrita :—		
	1. Ga Tîvratara Mela	...	Karnāta
	2. Dha Komala Mela	...	Mukhārī
III.	Melas with two Vikritas :—		
	1. Ri and Dha Komala Mela	...	Todî
	2. Ga and Ni Tîvratara Mela	...	Kedāra
IV.	Melas with three Vikritas :—		
	1. Ga, Ma & Ni Tîvratara Mela	...	Iman
	2. Ga, Dha & Ni Tîvratara Mela	...	Megha
	3. Ga, Ma & Ni Tîvratara Mela	...	Hridaya Ramā

V. Melas with four Vikritas :—

1. Ri & Dha Komala,
   Ga & Ni Tîvratara ... Gaurî
2. Ga Atitîvratama,
   Ma, Dha & Ni Tîvratara ... Sāranga
3. Ga, Ma, Dha & Ni Tîvratara ... Purvā

VI. Mela with five Vikritas :—
Ri & Dha Komala,
Ga, Ma & Ni Tîvratara ... Dhanāshrî

This method of designating Melas according to the number and character of the Vikrita notes characterising them is most rational and practically useful. A similar method has been adopted in the present treatise for naming Melas and distinguishing them from each other, by means of their Vikrita notes in Semitonic Notation.

It is a rather strange fact that Hridaya Nārāyana makes no mention of the nine new Melas introduced by Vitthala into the Hindusthānî system though he wrote his books long after him. This can be explained only by the assumption that music did not advance *pari passu* in all parts of Northern India. That the new Melas of Vitthala were not all lost to the Northern system of music of that period is shown by the fact that at least five of those Melas are found in the book of the later author Ahobala, though in some cases with different or slightly different names.

D. AHOBALA IN SANGÎTA PĀRIJĀTA.

Ahobala is the best known of all pre-modern writers of the Northern School. He wrote his famous book Sangîta Pārijāta most probably in the second half of the seventeenth century A.D.

In his book Ahobala follows in the main the same method as adopted by Lochana. He is, however, much in advance as compared with previous writers not only in regard to the number of Melas but also in regard to the variety of Rāgas. But, he is rather unmethodical and follows neither the older method of classification into six groups of Ragas nor the later

one of Melas or Janaka Rāgas and Janya Rāgas. Like Vitthala he does not give the number or the names of his Melas. Some difficulty is, therefore, felt in ascertaining the number and structure of his Melas. While the authors, who preceded him, mention not more than about eighty Rāgas Ahobala describes as many as one hundred and twenty Rāgas. A careful search in this wilderness of Rāgas has enabled us to find out twenty-three Melas.

(a). Vikrita notes of Ahobala : For expressing his Melas Ahobala uses all the Vikrita notes of Lochana except Tîvratara Ga and Tîvratara Ni. The author uses Tîvra Ga and Tîvra Ni as substitutes for these notes. In doing so he must be considered to have committed a mistake. Because, Tîvra Ga divides the Tone of four Shrutis between Shuddha Ga and Ma into two Semitones of unequal lengths, one of which is of one Shruti and the other of three Shrutis[13]. The three-Shruti interval between Tîvra Ga and Ma, which is undoubtedly intended to represent a Semitone, is apt to be confused with a Minor Tone. Similarly, the interval between Tîvra Ni and Sa, which consists of three Shrutis, also represents a Semitone. It is unfortunate that a cautious writer like Ahobala should have committed such serious mistakes. He seems to have overlooked the fact that the ancient Antara and Kākalî notes were identical with his Tîvra Ga and Tîvra Ni respectively. Lochana recognised the identity of Kākalî with Tîvratara Ni, as will appear from the following verse of Rāga Taranginî :

"षड्जस्य द्वे श्रुती गृह्णन् निषादः काकली स्मृतः
तीव्रतरे निषादैव सैव गेया विचक्षणैः ॥"

"Nishāda is called Kākalî when it takes two Shrutis of Shadja. Experts sing it at Tîvratara Nishāda"

Hridaya Nārāyana also uses both these names to signify the same note. But none of these two authors speak anything about the Antara. However that may be, we must substitute Tîvratara Ga and Tîvratara Ni for Tîvra Ga and Tîvra Ni

13. Vide "Sangîta", March 1931, p. 21.

wherever they occur in Sangîta Pārijāta in order to enable us to correctly interpret Ahobala's Melas. He introduced three extraordinary notes over and above the two previously introduced by Lochana, viz., Tîvratara Ri, Purva Ga and Purva Ni. The first of these is five Shrutis above Sa and coincident with Shuddha Ga, the second is three Shrutis above Sa and coincident with Shuddha Ri and the third is three Shrutis above Pa and coincident with Shuddha Dha. We have thus altogether five extraordinary notes in Ahobala's scheme, viz, Purva Ga Tîvratara Ri, Atitîvratama Ga, Purva Ni and Tîvratara Dha which are coincident with the Shuddha notes Ri, Ga, Ma, Dha and Ni respectively[14]. Of these the two Purva notes were meant specially for Mela Mukhārî, the South Indian Scale of Origin, which Ahobala appears to have attempted to popularise in Northern India.[15].

This Mukhārî is quite distinct from Lochana's Mela of the same name and is not mentioned by any other Northern auther. Ahobala does not give any specific name either to his Shuddha Mela or to any other Mela. The first of his Rāgas with Shuddha notes is called Saindhava. We may, therefore, call his Shuddha Mela by that name. Lochana calls it Bhairavî. In his Hridaya Kautuka Hridaya Nārāyana places Bhairavî first in the list of Rāgas with Shuddha notes. But, in his Hridaya Prakāsha he places Saindhava first in the list. This Rāga is still sung in Bengal in the same Mela under the name Sindhu (the word Saindhava being only an adjective form of it). Ahobala's Bhairavî is equivalent to Mela Mukhārî of Lochana, which has for its Vikrita notes Go, Do and No.

14. "ऋषभः शुद्ध एवासौ पूर्वगांधार उच्यते ।
गांधार शुद्ध एवासौ रिस्तीव्रतर इष्यते ॥
अतितीव्रतमः गः स्यान् मध्यमः शुद्ध एव हि ।
धैवतः शुद्ध एवासौ निषादः पूर्वसंज्ञकः ।
निषादः शुद्ध एवासौ धस्तीव्रतर इष्यते ॥"

15. Purva Ga is also used in the anomalous Mela Shuddha Varāti.

This form of Bhairavî is still to be found in South Indian music, where it is called Nata Bhairavî. That this form of Bhairavî existed even in the time of Lochana is evident from the following verse of Rāga Taranginî :

अन्ये तु भैरवी-रागे धैवतं कोमलं विदुः ।
तदशुद्धं यतस्तादृङ् नायं रागोऽनुरंजकः ॥

"Others, however, take Komala Dha in Bhairavî Rāga. That is incorrect, as such a Rāga is not pleasing."

Lochana was evidently not in favour of this form of Bhairavî. But, in spite of his disapproval it appears to have supplanted the other form in the time of Ahobala. In modern Hindusthānî music, however, Bhairavî is sung in the Mela called Todî by Lochana and Ahobala. We thus find the same Rāga sung in three different Melas at different periods of the musical history of Northern India.

In naming the Melas of Ahobala we have chosen, as far as possible, the names of those of his Rāgas which are either identical with or similar to names of Melas of earlier or later writers.

Of the twenty-three Melas found in Sangîta Pārijāta three are inexplicable. Nine of the remaining twenty Melas, viz., Kedārî, Kānadî, Saindhava, Bhairavî, Todî, Kalyāna, Gaurî, Sāranga and Rāmakarî are identical with the Melas Kedāra, Karnāta, Bhairavî, Mukhārî, Todî, Iman, Gaurî, Sāranga and Dhanāshrî respectively of Lochana. The five Melas Ābhîrîkā, Deshākhyā, Auttarā Gurjarî, Karnāta Gaula and Nāta are identical with the Melas Ābhîrî, Deshākshî, Nāda-Rāmakrî, Karnāta and Shuddha Nāta respectively of Vitthala. Melas corresponding to these five are also found in some books on South Indian music. The three Melas of Ahobala Sālanga, Varātî Todî and Mukhārî are not found in any other work of the Northern system but are found in books on the Southern System. The three Melas of Ahobala Meghanāda, Punnāga Varātî and Nāga Varātî are not found in any other work on Indian music. The last mentioned six are new Melas introduced into the Northern School of Music

by Ahobala. The three Melas of Ahobala which do not admit of any rational explanation are Shuddha Varātî, Shoka Varātî and Vaijayantî.

(b). Five Melas of Ahobala examined: We shall deal in the present chapter with only the three Melas of Sangîta Pārijāta which are not found in any other work, viz., Punnāga Varātî, Nāga Varātî and Meghanāda, and also with the two Melas Ābhîrikā and Auttarā Gurjarî which are still in use in modern Hindusthānî music. The nine Melas which are found in Rāga Taranginî of Lochana need no explanation. The remaining six Melas of Ahobala are found in South Indian books on music. These six Melas viz., Deshākhya, Karnāta Gaula, Nāta, Sālanga, Varātî Todî and Mukhārî are identical with the Melas Deshākshî, Kannada Gaula and Shuddha Nāta of Rāmāmātya, Vegavāhinî of Tulajendra, Kāmoda of Vitthala (in Rāga Manjarî) and Mukhārî of all southern writers respectively. The structure of these six Melas of Ahobala will be understood when the above-mentioned corresponding Melas will be explained in the following two chapters on South Indian Melas. Ābhîrikā is described by Ahobala as having the Vikrita notes Komala Dha and Tîvra Ni. If, as suggested above, we substitute Tîvratara Ni for Tîvra Ni, the intervals of the Mela would be: 3. 2. 4. 4. 2. 5. 2 or T. S. T. T.S.L.S. The combination T. S. L. S. included in this Mela represents Pentachord No. (3), which is characteristic of Second, Third and Fifth Secondary Scales. On an examination of the tables of Modes of these Scales we find that the Mela is identical with the First Mode of Secondary Second Scale, the Tonics being Sa and Pa. To correctly represent the Mela the Shruti intervals should be 4. 2. 3. 4. 2. 5. 2. In Just Notation the Mela should be written thus:

Ābhîrikā Mela of Ahobala in Just Notation.

*Sa	Ra	Go	Ma	*Pa	Do	Na	Sa¹	—Sec. II. 1.
9	5	8	9	5	12	5		

The notes need not undergo any change in Semitonic Nota-

tion. This Mela is to be found in most of the South In treatises. It survives in a popular Rāga of Upper India called Piloo. The Vikrita notes used in Auttarā Gurjarî are Komala Ri, Komala Dha and Tîvra N If Tîvratara Ni is substituted for Tîvra Ni, the Shruti intervals of the Mela stand thus 2. 3. 4. 4. 2. 5. 2. Doubling the octave we get the combination 5. 2. 2. 3 or L. S. S. T, which represents the intervals of an ascending Chromatic Pentachord. This Mela is, therefore, a Mode of an Ascending Chromatic Scale. If we consult the tables of these Scales, we find that the Mela is the Mode No. 3b of the First Chromatic Scale, Group A, taking Na to be coincident with So. The Tonics are Ga and Dha. The correct Shruti dispositions of the Mela should be : 2. 4. 3. 4. 2. 6. 1. Just Notation the Mela should be written as follows :—

Auttarā Gurjarî Mela of Ahobala in Just Notation :

Sa Rŏ *Go Ma Pa *Do So Sa[1]—Chrom. A, I, 3b
5 9 8 9 5 14 3

In Semitonic Notation it may be written as :

Sa Ro *Go Ma Pa *Do Na Sa[1]

This Melas survives in some parts of Northern India. In "Kantha Kaumudî" a Bengali work by Kshetra Mohan Goswāmî, a great musician of Bengal, we find two compositions in Rāga Gurjarî Todi in this Mela. This book also contains two other compositions in Rāga Khat also in the same Mela[16]. Gurjarî Todî is most probably the modern form of Ahobala's Auttarā Gurjarî.

Bhatkhande tells us that a particular form of Rāga Piloo is sung in Rampur State, a famous seat of Hindusthānî music, in this Mela and that he learnt it from Nawab Sadat Ali Khan of that State, a lineal follower of the great Tānasena[17]. This

16. Vide "Kantha Kaumudî," Part I, pp. 159, 160, 108 and 109. (Second Edition, 1330 B. S.)

17. Vide "Hindusthānî Sangîta Paddhati" (Marathi), Part IV, p. 109 (Ed. 1932).

Piloo is quite different from the Piloo referred to above, which is more widely known in Upper India[18]. Ahobala mentions another Gurjarî, which he calls "Dākshinātyā (Southern) Gurjarî" in order to distinguish it from Auttarā (Northern) Gurjarî. This Gurjarî, which evidently belonged to the Southern School of music, was, according to the author, sung in the Mela of Mālava, which had for its Vikrita notes Ro and Do, like modern Bhairava of Hindusthānî music. Ahobala's Auttarā Gurjarî is identical with Nāda Rāmakrî of Vitthala and Nāda Rāmakriyā of Rāmāmātya.

Of the three Melas, which are not to be found in any other treatise, Punnāga Varātî has for its Vikrita notes Tîvratara Ma and Tîvra Ni. Substituting Tîvratara Ni for Tîvra Ni, we get the intervals :—

	3.	2.	6.	2.	3	4.	2
or	T.	S.	L.	S.	T.	T.	S

As the Characteristic Pentachord No. (3) with the intervals T. S. L. S occurs in this Mela, it must be a Mode of either the Second or the Third or the Fifth Secondary Scale. On a scrutiny of the tables of Modes of these Scales it will be found that the Mela must be identified with the Fourth Mode of Secondary Third Scale, having Ri and Pa as Tonics. To represent the Mela correctly the Shruti intervals should be 4. 2. 5. 2. 4. 3. 2. It should be written as follows in Just Notation :

Mela Punnāga Varātî of Ahobala in Just Notation :

Sa	*Ra	Go	Mî	*Pa	Dâ	Na	Sa[1]
9	5	12	5	9	8	5	

—Sec. III, 4.

In Semitonic Notation the Mela would stand thus :

Sa *Ra Go Mi *Pa Da Na Sa[1].

18. The present writer heard a song of this Piloo from the great musician Abdul Karim Khan of Bombay. Poet Tagore composed some Bengali songs in this Piloo. Bhatkhande makes no mention of this Piloo, but speaks of another hybrid Piloo in which all the twelve notes of the gamut are said to be used and which scarcely deserves the name of Rāga.

The Vikrita notes in the Mela Nāga Varātî are stated by Ahobala to be Tîvratara Ma and Komala Dha. The intervals are :

3. 2. 6. 2. 2. 3. 4
or T. S. L. S. S. T. T

The Characteristic Pentachord No. (4) with the intervals L S. S. T occurs in this Mela. It must, therefore, be a Mode of one of the Ascending Chromatic Scales. Tables of the Modes of these Scales will show that the Mela is to be identified with the Sixth Mode of Chromatic First Scale, Group A, with Ga and Ni as Tonics. The correct Shruti intervals should be 4. 2. 6. 1. 2. 4. 3. It should stand as follows in Just Notation :

Mela Nāga Varātî of Ahobala in Just Notation :

Sa Ra *Go Po Pa Do *No Sa¹ —Chrom. A. I. 6.
9 5 14 3 5 9 8

The Mela in Semitonic Notation would be written as :

Sa Ra *Go Mi Pa Do *No Sa¹

The note Mi of the Semitonic Notation must be considered to be coincident with the note Po of Just Notation.

The Mela of Meghanāda is stated by Ahobala to have only one Vikrita note, viz., Komala Ri. So, the intervals are :

2. 3. 4. 4. 3. 2. 4
or S. T. T T. T. S. T

It contains the Characteristic Pentachord No. (2) with the intervals T. T. T. T. and must, therefore, be a Mode of either the First or the Fourth Secondary Scale. As those two Scales are similar the Mela may belong to any one of them. So, it may be identified either with the Second Mode of Secondary First Scale having Ma and Ni as Tonics or with the Fifth Mode of Secondary Fourth Scale having Sa and Ma as Tonics. The correct Shruti intervals in the first case would be : 2. 3. 4. 3. 4. 2. 4 and in the Second case : 2. 4. 3. 4. 3. 2. 4. In Just Notation these forms of the Mela would appear thus :—

Mela Meghanāda of Ahobala in Just Notation :

Sa Rŏ Gŏ *Ma Pă Da *Nŏ Sa¹ —Sec. I, 2—(1)
5 8 9 8 9 5 9

or $\overset{*}{\text{Sa}}$ Rŏ Go $\overset{*}{\text{Ma}}$ Pa Da Nŏ Sa^1 —Sec. IV, 5—(2)
5 9 8 9 8 5 9

In Semitonic Notation the Mela is to be written thus :—
Sa Ro Go Ma Pa Da No Sa^1

(c). Twenty correct Melas of Ahobala :

The twenty correct Melas of Ahobala with the Vikrita notes of his Primary Melas in Semitonic Notation and Scales and Modes of his Secondary and Chromatic Melas are shown below :

Melas of Ahobala :

1.	Kedārī	...	...	Shuddha notes
2.	Kānadī	...	...	No
3.	Saindhava	...	...	No Go
4.	Bhairavī	...	...	No Go Do
5.	Todī	...	...	No Go Do Ro
6.	Kalyāna	...	...	Mi
7.	Meghanāda	...	...	Sec. I, 2.
8.	Ābhīrikā	...	...	Sec II, 1.
9.	Punnāgā Varātī		...	Sec. III, 4.
10.	Sālanga	...	...	See. III, 5.
11.	Gaurī	...	...	Sec. V; 1.
12.	Deshākhya	...	...	Chrom. A, I, 1.
13.	Auttarā Gurjarī		...	Chrom. A, I, 3b.
14.	Nāga Varatī	...	...	Chrom. A, I, 6.
15.	Karnāta Gaula		...	Chrom. A, II, 1.
16.	Varātī Todī	...	...	Chrom. A, II, 6.
17.	Nāta	...	...	Chrom. A, V, 1.
18.	Sāranga	...	...	Chrom. A, V, 4.
19.	Mukhārī	...	...	Chrom. B, V, 5.
20.	Rāmakarī	...	...	Chrom. B, V, 6a.

Ahobala was the last of medieval writers who made any real contribution to the Northern System of Indian music. We need not deal with the works of Srinivāsa and Bhaba Bhatta, who were only compilers and made no addition to the list of Melas.

The total number of Melas found in the works of medieval writers dealt with above is twenty-six. Of these six stand for Modes of Primary Scales, seven for those of Secondary Scales and thirteen for those of Chromatic Scales. It will thus be seen that the number of Secondary Melas is about the

same as that of Primary Melas and the number of Chromatic Melas is more than double. In other words, the number of Melas based on Deshî Rāgas and incorporated into the Mārga system is more than thrice the number of Melas based on the ancient Primary Scales. This shows how greatly the ancient musical system was enriched by materials borrowed from popular music. But, unfortunately, many of the new Melas were subsequently lost, though some new Melas appear to have been added to the modern system.

E. MEDIEVAL MELAS OF NORTHERN INDIA.

Of the four medieval authors mentioned above Lochana and Hridaya Nārāyana both mention twelve Samsthānas or Melas, of which eleven have been found to be scientifically correct. Seventeen out of the eighteen Melas of Vitthala found out from his descriptions of Rāgas in Rāg Manjarî and twenty out of the twenty-three Melas mentioned by Ahobala have been found to be correct. Some of the Melas of these authors being common, the total number of correct Melas of these writers is twenty-six. The Mela Signatures and Serial Numbers of the Secondary and the Chromatic Melas of these authors together with their medieval names and the Scales and Modes they represent are given below.

(a). Seven Medieval Secondary Melas :

	Medieval names	*Mela-Signature and Serial Number*	*Scale and Mode represented*
1.	Meghanāda (Ahobala)	Ro Go No (9)	Sec. I, 2 or Sec. IV, 5
2.	Abhîrî (Vitthala)	Go Do (15)	Sec. II, 1
3.	Bhairava (Vitthala)	Ro Do No (19)	Sec. II, 5
.	Hāmîra Nāta (Vitthala)	Do (22)	Sec. III, 1
.	Punnāga Varātî (Ahobala)	Go Mi (25)	Sec. III, 4
6.	Sālanga (Ahobala)	Ro No (26)	Sec. III, 5
7.	Gouri (Lochana)	Ro Do (29)	Sec. V, 1

(b). Thirteen Medieval Chromatic Melas :

	Medieval Name	*Mela-Signature and Serial Number*	*Scale and Mode represented*
1.	Deshākshî (Vitthala)	Ri (36)	Chrom. A,I,1
2.	Nāda Rāmakrî (Vitthala)	RoGoDo (38)	Chrom. A,I,3b,
3.	Purvā (Lochana)	Midi (39)	Chrom. A,I,4
4.	Nāga Varātî (Ahobala)	GoMiDoNo (41)	Chrom. A,I,6
5.	Karnāta (Vitthala)	RiNo (43)	Chrom. A,II,1
6.	Megha (Lochana)	Di (46)	Chrom. A,II,4
7.	Varātî Todî (Ahobala)	RoGoMiDoNo (48)	Chrom. A,II,6
8.	Gurjarî (Vitthala)	RiDoNo (50)	Chrom. A,III,1
9.	Shuddha Nāta (Vitthala)	RiDi (64)	Chrom. A,V,1
10.	Sāranga (Lochana)	GiMiDi (67)	Chrom. A,V,4
11.	Kalyāna (Vitthala)	RiMiDo (97)	Chrom. B,IV,6
12.	Mukhārî (Ahobala)	RoGooDoNoo (103)	Chrom. B,V,5
13.	Dhanāshrî (Lochana)	RoMiDo (104)	Chrom. B,V,6a

F. MODERN MELAS OF NORTHERN INDIA.

(a). Twelve lost Medieval Melas :

Of the twenty-six medieval Melas twelve have been lost to modern Hindusthānî music. The surviving fourteen Melas include the six Primary Melas, which are based on the four ancient Scales. So, of the twenty Melas including seven Secondary and thirteen Chromatic Melas, which were new acquisitions from Deshî music, only eight survived. The twelve lost Melas were all of Deshî origin. Of these four are Secondary and eight Chromatic Melas. These are given below :

The Lost Medieval Melas.

	Signature and Serial Number		*Scale and Mode represented*
1.	Ro Go No (9)	...	Sec. I, 2 or Sec. IV, 5
2.	Do (22)	...	Sec. III, 1.
3.	Go Mi (25)	...	Sec. III, 4.
4.	Ro No (26)	...	Sec. III, 5.
5.	Ri (36)	...	Chrom. A,I, 1.
6.	Mi Di (39)	...	Chrom. A,I, 4.
7.	Ri No (43)	...	Chrom. A, II, 1.
8.	Di (46)	...	Chrom. A,II, 4.
9.	Ro Go Mi Do No (48)		Chrom. A,II, 6.
10.	Ri Do No (50)	...	Chrom. A, III, 1.
11.	Ri Di (64)	...	Chrom. A, V, 1.
12.	Ri Mi Do (97)	...	Chrom. B, IV, 6.

It is quite possible that this large number of lost Melas, which a few centuries ago gave rise to many Rāgas, can by diligent search be re-discovered from the same source from which they were discovered.

Of the eight Deshî Melas, whioh have survived, three are Secondary and five Chromatic. The three Secondary Melas are Go Do, Ro Do No and Ro Do ; and the five Chromatic Melas are Ro Go Do, Go Mi Do No, Gi Mi Di, Ro Goo Do Noo and Ro Mi Do.

Though Hindusthānî music has lost twelve medieval Melas, it has acquired eleven new Melas, of which one is Primary, one Secondary and nine Chromatic. The Primary Mela is No Go Do Ro Po, the Secondary Mela is Go Mi No, and the nine Chromatic Melas are : Ro Goo Mo Do Noo, Ro Go Mi Do, Ri Pi No, Ro Po Do, Go Mo, Ro, Ro Mi, Ro Goo Po Do No and Ro Po.

Of the aforesaid nineteen Melas found in Modern Hindusthānî music eight are not used in their proper forms. Mela No Go Do Ro Po is expressed by Shuddha Mela with Na as Mode-initial in Rāgas Behāg and Iman, Mela Go Mi No by Mela Go Do with Ma as Mode-initial in Rāga Piloo, Mela Go Mi Do No by Mela Ro Go Do with Ma as Mode-initial in Rāga Rāmpuri Piloo, Mela Ro Goo Mo Do Noo by Mela Ro Go Mi Do with Na as Mode-initial in Rāga Multānî, Mela Ri Pi No by Mela Ro Go Mi Do with Go as Mode-initial in Rāga Pāschātya Vasanta, Mela Go Mo by Mela Ro Mi (Pi) with Da as Mode-initial in Rāgas Puriyā and Mārwā, Mela Ro Goo Po Do No by Mela Ro with Na as Mode-initial in Rāga Prāchya Lalita and Mela Ro Goo Do Noo either by Mela Ro Mi Do with Na as Mode-initial in Rāgas Dhanāshrî and Gourî, or by Mela Ro Po with Ga as Mode-initial in Rāga Sohinî.

(b). Twenty-five modern Hindusthānî Melas :

Modern Hindusthānî music, therefore, contains altogether twenty-five Melas, including fourteen medieval and eleven newly acquired Melas. Of these six are Primary, five Secondary and fourteen Chromatic Melas.

The twenty-five Melas, which have been found to be used in modern Hindusthānî music, are given below together with the Scales and the Modes, which the Secondary and the Chromatic Melas represent.

Melas of Modern Hindusthānî Music.

	Signature and Serial Number	*Scale and Mode represented*
1.	Shuddha (1)	Primary
2.	No (2)	Do
3.	No Go (3)	Do
4.	No Go Do (4)	Do
5.	No Go Do Ro (5)	Do
6.	No Go Do Ro Po (6)	Do
7.	Mi (7)	Do
8.	Go Do (15)	Sec II, 1
9.	Go Mi No (18)	Sec. II, 4
10.	Ro Do No (19)	Sec. II, 5
11.	Ro Do (29)	Sec. V, 1
12.	Ro Go Do (38)	Chrom. A, I, 3b
13.	Go Mi Do No (41)	Chrom A, I, 6
14.	Ro Goo Mo Do Noo (65)	Chrom. A, V, 3a
15.	Ro Go Mi Do (66)	Chrom. A, V, 3b
16.	Gi Mi Di (67)	Chrom. A, V, 4
17.	Ri Pi No (68)	Chrom. A, V, 5
18.	Ro Po Do (70)	Chrom A, V, 7b
19.	Go Mo (71)	Chrom. B, I, 1
20.	Ro Mi (80)	Chrom. B, II, 3a
21.	Ro Goo Po Do No (86)	Chrom. B, III, 2
22.	Ro (87)	Chrom. B, III, 3a
23.	Ro Po (101)	Chrom. B, V, 3a
24.	Ro Goo Do Noo (103)	Chrom. B, V, 5
25.	Ro Mi Do (104)	Chrom. B, V, 6a

The above list need not be taken as exhaustive as other Melas may be found out by careful examination of uncommon Rāgas[19].

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19 Hindusthānî music is highly indebted to Vishnu Narayana Bhatkhande, B.A., L.L.B., for his great efforts at systematisation of modern theory and practice. He is the author of the work named "Hindusthānî Sangîta Paddhati", in five volumes written in his own provincial language Marathi, in which he has covered almost the whole field of Hindusthānî music and attempted to throw light on many controversial subjects. He also wrote another book in Sanskrit verse called "Srimallakshya-sangîtam" in which he gave under the nom-de-

In the concluding section (G) a table of thirty-seven Melas will be found, which include the twenty-five modern and the twelve lost medieval Hindusthānî Melas. Those used either in modern or in medieval music have been marked by the sign +. Melas common to both the periods and those either lost or added to modern music will be easily found out from the table.

plume "Vishnu Sharma" an account of modern theory and practice. His most remarkable contribution to Hindusthānî music is the collection of about eighteen hundred classical songs from the renowned *Gharānas* of Rampur, Gwalior, Jaipur and other places. These were published in six volumes (two after his death) with Sanskrit authoritative texts and prefatory explanation of each Rāga in Marathi. His whole system is based on ten *Thāts* or Melas, which have been named after Rāgas. These names have been almost universally accepted in northern India. They include six Primary, one Secondary and three Chromatic Melas. The Primary Melas are called: Vilāval, Khamāj, Kāfi, Āsāvarî, Bhairavî and Kalyāna corresponding to the Primary Melas Nos. (1) to (5) and (7) in the above list. The Secondary Mela is called Bhairava and corresponds to Ro-Do Mela in the above list. The three Chromatic Melas are called Todî, Mārwā and Puravî corresponding to Ro Go Mi Do, Ro Mi and Ro Mi Do Melas respectively of the above list. We have shown above while dealing with medieval Melas the confusion which is likely to arise out of the custom of calling Melas by names of Rāgas. The same confusion exists even in modern music. The Rāga Āsāvarî is sung in two Melas viz, No Go Do and No Go Do Ro. The Rāga Puravî is sung in two Melas Ro Mi Do and Ro Mi (in Bengal). Then, again, the name Bhairavî is given to No Go Do Mela in southern India, while it is applied to No Go Do Ro Mela in northern India. The name Todî belongs to No Go Do Ro Mela in southern India, while it is applied to Ro Go Mi Do Mela in northern India. To avoid all these coufusions and bring about a uniform nomenclature throughout India we have eschewed Rāga names for Melas in this treatise and called them by their Vikrita notes.

Although Bhatkhande gives prominence to the above-mentioned ten Melas, he speaks, as have been mentioned above, about Ro Go Do Mela, in which musicians of Rāmpur sing a particular variety of Rāga Piloo. This Rāga has been called Rāmpuri Piloo in order to distinguish it from another Piloo, which is sung in Go Do Mela in most parts of Northern India.

G. THIRTY-SEVEN

MELAS OF NORTHERN INDIA.

Signature and Serial Number		*Scale and Mode represented*	*Used in modern music*	*Used in medieval music*
1.	Shuddha (1)	Prim. I, 1 ; II, 4 ; III, 7 ; IV, 3 ; V, 7	+	+
2.	No (2)	Prim. I, 5 ; II, 1 ; III, 4 ; IV, 7 ; V, 4	+	+
3.	No Go (3)	Prim. I, 2 ; II, 5 ; III, 1 ; IV, 4 ; V, 1	+	+
4.	No Go Do (4)	Prim. I, 6 ; II, 2 ; III, 5 ; IV, 1 ; V, 5	+	+
5.	No Go Do Ro (5)	Prim. I, 3 ; II, 6 ; III, 2 ; IV, 5 ; V, 2	+	+
6.	No Go Do Ro Po (6)	Prim. I, 7 ; II, 3 ; III, 6 : IV, 2 ; V. 6	+	+
7.	Mi (7)	Prim. I, 4 ; II, 7 ; III, 3 : IV, 6 ; V, 3	+	0
8.	Ro Go No (9)	Sec. I, 2 ; IV, 5	0	+
9.	Go Do (15)	Sec. II, 1	+	+
10.	Go Mi No (18)	Sec. II, 4	+	0
11.	Ro Do No (19)	Sec. II, 5	+	+
12.	Do (22)	Sec. III, 1	0	+
13.	Go Mi (25)	Sec. III. 4	0	+
14.	Ro No (26)	Sec. III. 5	0	+
15.	Ro Do (29)	Sec. V, 1	+	+
16.	Ri (36)	Chrom. A, I, 1	0	+
17.	Ro Go Do (38)	Chrom. A, I, 3b	+	+
18.	Mi Di (39)	Chrom. A, I, 4	0	+
19.	Go Mi Do No (41)	Chrom. A, I, 6	+	+
20.	Ri No (43)	Chrom. A. II, 1	0	+

Compositions of both these varieties are found in K.P.M. III. The Mode-initial in these compositions should be Ma. The proper Melas for these two varieties should, therefore, be Go Mi Do No and Go Mi No. Independent use has been found of eleven other Melas. These together with the aforesaid fourteen Melas make a total of twenty-five Melas for the Northern System of modern Indian music.

Signature and Serial Number	*Scale and Mode represented*	*Used in modern music*	*Used in medieval music*
21. Di (46)	Chrom. A, II, 4	0	+
22. Ro Go Mi Do No (48)	Chrom. A, II, 6	0	+
23. Ri Do No (50)	Chrom. A, III, 1	0	+
24. Ri Di (64)	Chrom. A, V, 1	0	+
25. Ro Goo Mo Do Noo (65)	Chrom. A, V, 3a	+	0
26. Ro Go Mi Do (66)	Chrom. A, V, 3b	+	0
27. Gi Mi Di (67)	Chrom. A, V, 4	+	+
28. Ri Pi No (68)	Chrom. A, V, 5	+	0
29. Ro Po Do (70)	Chrom. A, V, 7b	+	0
30. Go Mo (71)	Chrom. B, I, 1	+	0
31. Ro Mi (80)	Chrom. B, II, 3a	+	0
32. Ro Goo Po Do No (86)	Chrom. B, III, 2	+	0
33. Ro (87)	Chrom. B, III, 3a	+	0
34. Ri Mi Do (97)	Chrom. B, IV, 6	0	+
35. Ro Po (101)	Chrom. B, V, 3a	+	0
36. Ro Goo Do Noo (103)	Chrom. B, V, 5	+	+
37. Ro Mi Do (104)	Chrom. B, V, 6a	+	+

N. B. The sign + indicates use.

CHAPTER X.

MELAS OF SOTHERN INDIA.

A. SCALE OF ORIGIN AND VIKRITA NOTES.

The modern Scale of Origin of Northern India has been shown in the last preceding chapter to be the "authentic" form of the ancient Madhyama Grāma, which is identical in tonality with the Diatonic Major Scale of Europe, *i.e.* to say, with the Primary First Scale. The Scale of Origin of Southern India, both medieval and modern is, like that of the medieval theorists of Northern India, identical in its Shruti arrangements with the ancient Shadja Grāma. But, unlike the latter it cannot be identified with any Primary Scale. This paradoxical situation can be explained only by the assumption that South Indian theorists totally missed the true significance of the ancient Shruti system. We find as a consequence that the Semitone is represented by these theorists sometimes by two Shrutis as in ancient times and sometimes by three Shrutis or even one Shruti, and the Tone is sometimes represented by four Shrutis, as in ancient times, and sometimes by five Shrutis. It is, therefore, absolutely impossible to ascertain the true character or tonality of the South Indian Scale of Origin from the arrangements of its Shrutis. For that purpose we must look to the use that is actually made of it in its practical application.

(a). Ahobala's Mukhārî a Chromatic Scale : Before trying to ascertain the character of the Scale from its actual use, we shall see how the famous North Indian theorist Ahobala characterized it according to the Northern System. This author devised two notes specially for expressing that Scale, viz., Purva Ga and Purva Ni, which are coincident with Shuddha Ri and Shuddha Dha respectively of the Northern System. The two other Vikrita notes used by him in the Scale are Komala

Ri and Komala Dha[1]. The Shruti intervals of Mukhārî, as the Shuddha Mela or Scale of Origln of Southern India was called by medieval writers, would according to Ahobala's description of it, stand thus :

	2.	1.	6.	4.	2.	1.	6
or	S.	S.	L.	T.	S.	S.	L

It contains the Characteristic Pentachord No. 5 T. S. S. L, in which the second S is a Small Semitone represented by one Shruti. The Scale is, therefore, a descending Chromatic Scale. In the Mode Tables it will be found to be identical with the Fifth Mode of Chromatic Fifth Scale, Group B. In Just Notation Mukhārî will. therefore, stand thus :

Mukhārî in Just Notation.

*Sa	Rŏ	Ră	*Ma	Pa	Do	Da	Sa[1]—Chrom. B, V, 5.
5	3	14	9	5	3	14	

Unlike the Scale of Origin of Northern India this Scale is "plagal" in form as the Tonics are Sa and Ma like ancient Scales.

(b). Rāmāmātya's description of Mukhārî : This Scale contains two similar chromatic tetrachords separated by a Tone. In each of these tetrachords the intervals are S. S. L. South Indian theorists have equated this Scale with the Shadja Grāma, so far as its Shruti arrangements are concerned. It contains two similar tetrachords separated by a Tone of four Shrutis, the Shruti intervals of each tetrachord being 3. 2. 4. This is a simple tetrachord with intervals T. S. T. But, in actual practice it is treated as a chromatic tetrachord in which the first Tone is treated as a Semitone and the second as a Large Tone of three Semitones. This is evident from the

1 "ऋषभः कोमलो यत्र गांधारः पूर्व संज्ञकः ।
मुखार्यां धैवतोद्ग्राहो निधौ पूर्वारव्य कोमलौ ॥
आरोहे गनिहोनायां न्यासांशौ षड्ज-पंचमौ ॥"

Sangîta Pārijāta, 373.

This verse is also remarkable for its mention of two different notes as Amsa (Vādî) and Nyāsa, though the correct Amsa should be Ma and not Pa.

facts that no Vikrita note is placed within the first Tone, and that two Vikrita notes are placed within the second Tone of each tetrachord. The two Vikrita notes of the lower tetrachord are called Sādhārana Ga and Chyuta Madhyama Ga and those of the upper tetrachord are called Kaishika Ni and Chyuta Shadja Ni by Rāmāmātya, the earliest of medieval writers on South Indian music. The two Vikrita notes of each tetrachord divide the four-Shruti interval into three Semitones, which are represented by Shrutis 1. 2. 1. Thus, we find that the Large Tones of the two tetrachords of Mukhārî, which aught to consist of six Shrutis, as Ahobala with his keen sense of tonality discovered, were represented by only four Shrutis by South Indian writers. One of the Semitones of each tetrachord was represented by three Shrutis, two by two Shrutis and the other two by one Shruti only. The Shrutis representing the five Semitones of each tetrachord according to Rāmāmātya and the north Indian writer Lochana are shewn below for the sake of comparison :

Rāmāmātya—	3.	2.	1.	2.	1
Lochana —	2.	1.	2.	2.	2

Such division of the two tetrachords by Rāmāmātya created the absurd position that the larger intervals of five Shrutis between Sa and Ga and between Pa and Ni contained two Semitones each, while the smaller intervals of four Shrutis between Ga and Ma and between Ni and Sa[1] contained three Semitones each. By treating the two three-Shruti intervals in the tetrachords as Semitones and the two four-Shruti intervals in them as Large Tones Rāmāmātya practically converted the Primary Scale into a Chromatic Scale.

(c). **Hanumān violates rules of Shruti :** We have seen in the last preceding chapter that the ancient Mārga music was highly influenced by Deshî music. This influence appears to have been much greater in Southern India than in Northern India, as will be evident from the fact that only three out of the fourteen correct Melas of Rāmāmātya were derived from the Primary Scales of Mārga music. The bulk of the music at

the time of Rāmāmātya based on the other Melas must have been derived from Deshî music. This music departed widely from the rules of the ancient system. Vitthala says in his Rāga Manjarî :

"न्यास-ग्रहांशेषु च पूर्णतायाम्
अथ श्रुतौ षाडव-औडुवेऽपि ।
सर्वत्र देशी-गत-राग बृन्दे
श्रीमद्धनूमान् नियमं न वव्रे ॥"

"Hanumān did not observe the rules regarding Nyāsa, Graha, Amsa, fullness, Shrutis, and hexatonic or pentatonic forms in any of the Deshî Rāgas."

Rāga Manjarî.

(d). Dravidian origin of Chromatic Scales : Almost the same verse is to be found in Pundarîka's Sadrāga Chandrodaya. The most important point to be noticed in this passage is that the ancient rules about Shrutis were quite inapplicable to these Rāgas. This shows that they were based on Scales which were different from the ancient Scales. Most of these Scales were, as we shall see, Chromatic in their character. It is a remarkable fact that the name of Hanumān is almost invariably associated with the Deshî music of Southern India. Hanumān, the great monkey chief and devotee of Shrî Rāma Chandra, evidently stood as the representative of the ancient Dravidian culture which so greatly influenced the ancient Aryan culture. and left its indelible mark throughout India. As Kishkindhyā of epic fame was the original seat of this culture, we naturally find more remnants of this culture in Southern India than in any other part of it. Chromatic Scales, which were amongst the most important contributions of that culture, featured, therefore, most prominantly in the popular music of Southern India. These Scales are not to be found in the music of any people outside India. Some of these Scales were, we are told, imported to ancient Greece, but like an exotic plant died a natural death.

(e). Rāmāmātya's reform : When the Aryan settlers in Southern India were constrained to accept the popular music based on these Scales on account of their intrinsic beauty, the problem of expressing them by means of the Aryan system became very much perplexing. This is evident from the statments made by many medieval writers on South Indian music regarding the great discrepancy between theory and practice. The following passage is found in Rāmāmātya's book :

"संगीत-शास्त्रे वहुधा विरोधाः
सन्त्येव लक्ष्येषु च लक्षणेषु ।"

"In the musical Shāstra many contradictions between the prascribed features and (their applicationin) practical music, are to be found". Svaramela Kalānidhi I, 24.

A reform, therefore, became urgently necessary for reconciling the conflict between theory and practice. The earliest reform for this purpose was undertaken by Rāmāmātya at the request of Rāma Rājā of Shrî Ranga. Rāmāmā finished his famous work Svaramela Kalānidhi in the year 1550 A D.

(f). Wrong use of five Vikrita notes of Shārngadeva : The main problem before Rāmāmātya was : how to express the popular music of Southern India based on Chromatic Scales unknown to ancient Aryan India. The Mārga system was unable to express them. He was to make new combinations with notes which did not exist in the old system. That system contained only one truly chromatic note viz., Antara, though another chromatic note called Kākalî could also be used together with Antara for the purpose of converting one Scale into another—a process, which was known as Sādhārana. Rāmāmātya discovered that five new notes over and above the existing seven and four extraordinary notes coincident with four ordinary ones were needed for expressing the popular Melas of Southern India. Instead of taking an original course for devising the five chromatic notes like Lochana Pandita of Nothern India, Rāmāmātya selected five of the twelve Vikrita notes of Shārngadeva for this purpose. These Vikrita notes were. in fact, never intended by Shārngadeva to be used as

chromatic notes. Because, in the first place, four of these notes were *Achyuta*, i.e. to say, undisplaced from their original positions. Secondly, two of the *Chyuta* or displaced notes Sādhārana Ga and Kaishika Ni, which were obtained by raising Shuddha Ga and Shuddha Ni by one Shruti, taken with Shuddha Ri and Shuddha Dha divide the two tetrachord into three equal intervals of three Shrutis each and thus render them meaningless.[2] Thirdly, the *Chyuta* notes even were not used by Shārngadeva as chromatic notes anywhere in his treatise except Kākalî on rare occassions. It has been shewn in a preceding chapter that six of the twelve Vikrita notes mentioned by Shārngadeva belonged to the ancient system. These included the three Chyuta notes, viz, three-Shruti Panchama, which distinguished the Madhyama Grāma from the Shadja Grāma, the Antara and the Kākali, and the three Achyuta notes resulting from them, viz, four-Shruti Dhaivata, two-Shruti Madhyama and two-Shurti Shadja. The remaining six Vikrita notes were created by Shārngadeva himself especially for his Sādhārana Grāma, which was probably the most popular Scale of his time and subsequently became the Shuddha Scale of Northen India. Of these six notes five were displaced and one undisplaced. All the five displaced notes were removed from their original positions by only one Shruti which cannot be considered to be equivalent to a Semitone needed for getting a chromatic note. These five notes were obtained by lowering Sa, Ma and Pa by one Shruti and raising Ga and Ni by one Shruti. The undisplaced note was four-Shruti Ri brought about by lowering Sa by one Shruti. The five Chyuta Vikrita notes of

2. The same ambiguity of the tetrachords was inadvertently created by Ahobala by his notes Tîvra Ga and Tîvra Ni, as we noticed in the last preceding chapter. This ambiguity led the southern theorist to treat these two notes as Minor Thirds above Sa and Pa ; and the northern theorist as Major Thirds above those notes. Both of them were wrong. To have the correct positions Sādhārana Ga and Kaishika Ni must be lowered by one Shruti ; and Tîvra Ga and Tîvra Ni must be raised by one Shruti.

Shārngadeva's creation were adopted by Rāmāmātya as his chromatic notes. To serve his own purpose he took Chyuta Sa, Chyuta Ma and Chyuta Pa not as chromatic forms of the original notes Sa, Ma and Pa respetively, but as those of Ni, Ga and Ma respectivly and called them Chyuta Shadja Ni, Chyuta Madhyama Ga and Chyuta Panchama Ma. The fact that no notes were placed between Sa and Ri and between Pa and Dha by Shārngadeva led Rāmāmātya to infer that these intervals were Semitones. This misconception brought about the contradictory positions that, while these two three-Shruti intervals were taken to be equivalent to Semitones, similar intervals between Shuddha Ga and Chyuta Madhyama Ga, and between Shuddha Ni and Chyuta Shadja Ni were taken to be equivalent to Tones, as the notes Sādhārana Ga and Kaishika Ni were interposed within these intervals.

Rāmāmātya required only five chromatic notes for his scheme. But. he was confronted with seven. He actually accepted for his scheme the five Chyuta Vikrita notes of Shārngadeva. But. he could not totally discard the two ancient chromatic notes Antara and Kākalî These were the only true chromatic notes which were arrived at by raising Ga and Ni by the real Semitone of two Shrutis. He appears to have been rather perplexed about the use of these two notes. Though he used these notes in five of his Melas, he practically rejected them when he stated that these Melas were merged (*leena*) in five other Melas, because these two notes were representative (*pratinidhi*) of the two notes Chyuta Madhyama Ga and Chyuta Shadja Ni. or, in other words, were identical with them.[3]

3. Rāmāmātya was taken to task by Venkateshvara Dîkshit for having mentioned twenty Melas, although five of these Melas were, according to him. merged in five others. Venkateshvara seems to have misunderstood him. Rāmāmātya clearly states that there were in his time two views (*pakshas*) regarding Antara and Kākalî. According to one view (*paksha*) these notes were distinct from Chyuta Madhyama Ga and Chyuta Shadja Ni. In fact, the former two are lower by one Shruti than the latter two. According to the other view (*paksha*) the former were identical with the latter. Rāmāmātya says that according to the second view, which he calls

Rāmāmātya was, however, quite original and ingenious in his creation of the four extraordinary coincident notes. These were Pancha-Shruti and Shat-Shruti Ri coincident with Shuddha Ga and Sādhārana Ga respectively and Pancha-Shruti and Shat-Shruti Dha coincident with Shuddha Ni and Kaishika Ni respectively. It should be pointed out here that Rāmāmātya made a wrong use of the words Sādhārana and Kaishika, as these were not used by Shārngadeva as qualifications of any of his Vikrita notes. They were synonymous terms applied to his Sādhārana Grāma, as shewn in a preceding Chapter.

(g). Rāmāmātya preserves precious Chromatic Scales : In spite, however, of some mistakes committed by him, Rāmāmātya succeeded admirably in preserving some of the precious Chromatic Scales of his province by means of the scheme devised by him and thus earned the gratitude of lovers of music. The most typical of these Chromatic Scales were Mukhārî and Shuddha Nāta which are converse to each other. Each of these Scales contains two similar chromatic tetrachords which are descending in the former and ascending in the latter. We have seen that Ahobala devised two special extraordinary notes for Mukhārî, viz., Purva Ga and Purva Ni, which were coincident with Shuddha Ri and Dha respectively. These names were coined by Ahobala in order to avoid the use of similar names for the double Thirds KomalaRi-ShuddhaRi and KomalaDha-ShuddhaDha. The notes Shuddha Ga and

pratinidhi (representative) *paksha*, the five Melas are to be considered merged (*leena*). It appears that misconception had arisen at the time regarding the positions of Antara and Kākalî in the Shruti-scale. Some people held, and that correctly, that they were notes lower than Ma and Sa respectively by two Shrutis. Others held that they were lower than these notes by one Shruti only. While Rāmāmātya honestly faced both the view-points and expressed his preference for the wrong second view, Venkateshvara accepted and mentioned only the second view and accused Rāmāmātya of inconsistency. Consequently, Venkateshvara discarded the names Chyuta Madhyama Ga and Chyuta Shadja Ni, generally used by Rāmāmātya, and wrongly substituted for them Antara Ga and Kākalî Ni.

Shuddha Ni of Rāmāmātya, which correspond with Shuddha Ri and Shuddha Dha of Ahobala, are, therefore, extraordinary notes from the point of view of the Northern System. The two extraordinary notes required for Shuddha Nāta were Shat-Shruti Ri and Dha. These correspond with the two extra-ordinary notes of Ahobala Tīvratara Ri and Dha. The four extraordinary notes together with the five ordinary chromatic notes enabled Rāmāmātya and subsequent theorists of Southern India to put in writing many Chromatic Melas of Deshî music. Ahobala the North Indian theorist, who came a century after Rāmāmātya and appears to have been acquainted with both the systems of music, adopted some of the Chromatic Melas of Southern India and recorded them in the language of the Northern System. Before him the great South Indian musical scholar Vitthala acquired for the Northern School some of the Chromatic Melas of Southern India, which he expressed by means of his own Vikrita notes.

(h). Three different values of Semitone: That the twelve notes of Rāmāmātya were in practical use separated by equal Semitones like those of Northern India, is evident from the disposition of the frets of the Veena as described by him. The arrangements of the first six frets and the Shruti-intervals of the notes on the four strings of the Veena may be shewn thus :—

	IV	III	II	I
	Ma^1	Sa^1	Pa	Sa
	3	3	3	3
1.	Ch.P.Ma^1	Ri^1	Dha	Ri
	1	2	2	2
2.	Pa^1	Ga^1	Ni	Ga
	3	1	1	1
3.	Dha^1	S. Ga^1	K. Ni	S. Ga
	2	2	2	2
4.	Ni^1	Ch. M. Ga^1	Ch. S. Ni	Ch. M. Ga
	1	1	1	1
5.	K. Ni^1	Ma^1	Sa^1	Ma
	2	3	3	3
6.	Ch. S. Ni^1	Ch. P. Ma^1	Ri^1	Ch. P. Ma

The four strings tuned to Anumandra Sa, Anumandra Pa, Mandra Sa and Mandra Ma are Marked I to IV and the notes on the strings are placed vertically. The Shruti-numbers of the intervals are given between the consecutive notes. The first horizontal dotted line represents the bridge and the six frets are represented by the dotted lines marked 1 to 6 It will be observed that the interval between frets Nos. 1 and 2 on the fourth string contains one Shruti and the three intervals between the same frets on the other three strings contain two Shrutis each. As all the four intervals are equal, one Shruti is taken to be equal to two Shrutis. Similarly, from the intervals between frets Nos. 2 and 3, it will be seen that three Shrutis are taken to be equal to one Shruti and the intervals between frets Nos. 5 and 6 will show that two Shrutis are taken to be equal to three Shrutis. Therefore, one-Shruti, two-Shruti and three-Shruti intervals are all taken to be equal to each other. The tetrachord being thus divided into five equal intervals, each interval must be equivalent to a Semitone[4].

(i). **Rationalisation of Rāmāmatyr's scheme: "Open Sesame" for interpretation:** Treatment of the three-Shruti intervals, which represented Minor Tones in ancient India, as Semitones by Rāmāmātya has rendered his otherwise ingenious scheme irrational. It can, however, be rationalised by lowering by one Shruti all his notes except Sa, Ma and Pa. This process may, indeed, be considered to be the "Open Sesame" for interpretation of South Indian Melas. By this process the

4. Rao Bahadur P. R. Bhandarkar of Indore has shown in "Sangîta", Vol. I, No. 4, pp. 30-32 that the Veenas described by both Rāmāmātya and Pundarîka Vitthala were equally tempered. Mr. Ellis arrived at the same result on examination of South Indian Veenas. This is further confirmed by the fact that modern musicians of South India play without any difficulty the above-mentioned notes on equally tempered European musical instruments. Captain C. R. Day has in his book on South Indian music identified the twelve notes with C, D♭, D (E♭♭), E♭ (D♯), E, F, F♯, G, A♭, A (B♭♭), B♭ (A♯) and B of the European tempered Scale. The extraordinary notes are put within brackets.

three-Shruti intervals are eliminated from the Semitonic Scale and the Shruti intervals of that Scale stand thus :—

2. 2. 1. 2. 2. 2. 2. 2 2. 1 2. 2.

instead of 3. 2. 1. 2. 1. 3. 1. 3. 2. 1. 2. 1.

This Scale may be made quite equally tempered by adding one Shruti to each of the two one-Shruti intervals just like the North Indian Scale as shown in the last preceding chapter.

Later South Indian theorists have tried to improve Rāmāmātya's scheme by substituting Chatuh-Shruti Ri, and Chatuh-Shruti Dha for Pancha-Shruti Ri, and Pancha-Shruti Dha respectively. By these changes the Shruti-intervals stand thus :—

3. 1. 2. 2. 1. 3. 1. 3. 1. 2. 2. 1.

But, as the three-Shruti intervals are left unchanged, the aforesaid alterations do not remove the ambiguity about the Semitones. The best course is, therefore, to lower the nine notes by one Shruti as suggested above. We shall follow this rule for explaining South Indian Melas. Chyuta Panchama Ma will be called the mid-note and the other eight notes will be called inter-tetrachordal notes of the two tetrachords.

(j). Corresponding notes of Rāmāmātya and Modern North Indian music : Rāmāmātya's names of notes and names of corresponding notes of the modern North Indian system of music together with their Semitonic Notations are given below :

	Rāmāmātya's Names	Modern North Indian names	Semitonic Notations
1.	Sa ...	Sa ...	Sa
2.	Shuddha Ri ...	Komala Ri ...	Ro
3.	Shuddha Ga ..	Shuddha Ri ...	Ra
4.	Sādhārana Ga ...	Komala Ga ...	Go
5.	Chyuta Madhyama Ga ...	Shuddha Ga ...	Ga
6.	Shuddha Ma	Shuddha Ma ...	Ma
7.	Chyuta Panchama Ma ...	Tîvra Ma ...	Mi
8.	Pa ...	Pa ...	Pa
9.	Shuddha Dha ...	Komala Dha ...	Do
10.	Shuddha Ni ...	Shuddha Dha ...	Da
11.	Kaishika Ni ...	Komala Ni ...	No
12.	Chyuta Shadja Ni	Shuddha Ni ...	Na

(k). **Extraordinary and coincident notes :** The Shuddha notes being different in the two systems, the extraordinary notes are also different. They are shewn below as italicized notes, coincident notes being coupled by brackets :

	Rāmāmātya's Names		Modern North Indian names		Semitonic Notations
3.	*Pancha-Shruti Ri*		Shuddha Ri		Ra
	Shuddha Ga	...	*Dvi-Komala Ga*	...	Goo
4.	*Shat-Shruti Ri*	...	*Tîvra Ri*	...	Ri
	Sādhārana Ga	...	Komala Ga	...	Go
10.	*Pancha-Shruti Dha*		Shuddha Dha	...	Da
	Shuddha Ni	...	*Dvi-Komala Ni*	...	Noo
11.	*Shat-Shruti Dha*	...	*Tîvra Dha*	...	Di
	Kaishika Ni	...	Komala Ni	...	No

Applying the rule of lowering notes by one Shruti laid down above to Mukhārî we get the Shruti-intervals :

2. 2. 5. 4. 2 2. 5.

instead of 3. 2. 4. 4. 3. 2. 4.

These may be represented as :—

S. S. L. *T.* *S.* *S.* L.

It includes the Characteristic Pentachord of descending Chromatic Scales T. S. S. L., which we found in that Mela as described by Ahobala. Both the Tetrachords of this Mela are Chromatic and descending in character. To express this Mela by means of notes of the modern Northern System, we must use the two extraordinary notes, Dvi-Komala (double flat) Ga and Ni. In Semitonic Notation it should be written thus :—

Mukhārî :

*Sa Ro Goo *Ma Pa Do Noo Sa[1]

Shuddha Nātî of Rāmāmātya, which will be explained below, is converse to Mukhārî and is to be expressed by means of the other two extraordinary notes Tîvra Ri and Tîvra Dha. In Semitonic Notation it should stand as follows :—

Shuddha Nātî :

*Sa Ri Ga Ma *Pa Di Na Sa[1]

(*l*). **Uniform Scale of Origin for India :** Thus we find that all the notes used in South Indian music can be very conveniently expressed by means of notes derived from the North Indian Scale of Origin. From what has been stated in the preceding pages it will be clear that a Chromatic Scale is not only unusual but very inconvenient for use as a Scale of Origin. Moreover, there are Chromatic Melas which cannot be expressed by means of notes of the Southern System. Rāmāmātya was evidently compelled to adopt a Chromatic Scale as his Scale of Origin by force of circumstances beyond his control and trying to follow Shārngadeva too closely without fully understanding him landed himself into a mess of inconsistencies. It is very much desirable that modern South Indian theorists, who do not labour under the difficulties of Rāmāmātya should adopt the North Indian Scale of Origin and the scheme of notes based on it, not only for the sake of convenience of South Indian musicians, but also in order to bring about a uniformity of musical language throughout India.[5]

5. The following remarks of a foreigner—an impartial critic and lover of South Indian music—will, we think, be found valuable :—

"My southern friends will notice that the northern system of nomenclature has been adopted. It is true that the southern names of the notes as well as the northern, go back to ancient musical facts, but they have very little meaning to the ordinary musician today and are not clear enough to justify their coming into general use throughout India. The northern system, however, is based on a clear principle and will present no difficulty to the southern student.

The Shuddha notes of the northern system are those of the tonal scale Bilāval, the European Major Scale. With the exception of Ma, all the other notes are flats to the Shuddha notes. This is quite different from the southern system, where the Shuddha note is the lowest and the others are all sharps. Clearly confusion would be the only result of an attempt to retain both systems, while from all points of view the northern method is preferable. As most of the writer's time has been spent in the south and his first love for the genial south is always his best love, it is not likely that he has been biassed in coming to this decision"—

As a Chromatic Scale is very difficult to learn for beginners, Purandra Das is said to have introduced Māyāmālava Gaula as the starting Scale for the purpose of teaching music. This Scale though very easy to learn on account of its symmetrical structure is a Secondary Scale and tetrachordal and non-bicentric in character. It is, therefore, not a suitable Scale of Origin for scientific treatment of music. The best Scale suited for that purpose is the Primary First Scale, with which the Shuddha Scale of Northern India is identifiable.

Mukhārî was taken as the Scale of Origin by all medieval theorists of Southern India and continues to be used as such in modern music. But almost all writers devised different schemes of Vikrita notes of their own.

B. RĀMĀMĀTYA IN SVARA-MELA KALĀNIDHI

(a). Twenty Melas of Rāmāmātya examined : Rāmāmātya mentions altogether twenty Melas in his famous work Svaramela-Kalānidhi. But, as five of his Melas are said to be merged (leena) in five others, he practically reduces the number to fifteen. Of these Varālî is an inexplicable Mela, and Kedāra Gaula is identical with Sāranga Nāta. Revagupti, which is said to be merged in Baulî (identical with Mālava Gaula) is, according to the description found in his book, a distinct good Mela. So, the actual number of correct Melas of Rāmāmātya is fourteen. Of these eight are Chromatic, three Secondary and three Primary. They are as follows :

Chromatic	*Secondary*	*Primary*
1. Mukhāri	9. Mālava Gaula	12. Sāranga Nāta
2. Shuddha Nātî	10. Āharî	13. Shrîrāga
3. Shuddha Rāmakriyā	11. Vasanta Bharavî	14. Hindola.
4. Deshākshî		
5. Nāda Rāmakriyā		
6 Kannada Gaula		
7. Rîti Gaula		
8. Revagupti		

Rev. Herbert. A. Popley, B. A., in his book "The Music of India", Ch. I, Introduction, pp. 3-4

We have examined above Mukhārî, the South Indian Scale of Origin, and found it to be identical with the Fifth Mode of Chromatic Fifth Scale, Group B.

The second Mela in the above list Shuddha Nātî has, according to the description given by Rāmāmātya, for its Vikrita notes six-Shruti Ri and Dha, Chyuta Madhyama Ga and Chyuta Shadja Ni. The Shruti arrangement following from this description is 6. 2 1. 4. 6. 2. 1. Lowering the inter-tetrachordal notes by one Shruti according to the rule of interpretation laid down above, we get the Shrutis : 5 2. 2. 4. 5. 2. 2. These intervals may be represented by the letters *L. S. S. T.* L. S. S. The Characteristic Pentachord No. 4, L. S. S. T indicates that the Mela is included in the Ascending (A) Group of Chromatic Scales. Consulting the tables of Modes of this Group, we find that the Mela represents the First Mode of Chromatic Fifth Scale, Group A. In the description of his Nāta Mela Ahobala gives as its Vikrita notes Tîvratara Ri and Dha, and Tîvra Ga and Ni.[6] We have shown in the last preceding chapter that the two Tîvra notes of Ahobala must be treated as Tîvratara notes for correct interpretation of his Melas containing them. The Shruti arrangement would, therefore, stand thus : 5. 2. 2. 4. 5. 2 2. This is the same as that of Rāmāmātya's Shuddha Nātî Mela as shewn above. Nāta Mela of Ahobala is, therefore, identical with Shuddha Nātî Mela of Rāmāmātya.

As the five-Shruti intervals of this Mela stand for Minor Thirds, the correct intervals should contain six Shrutis. The correct Shruti intervals of the Mela should, therefore, be 6. 1. 2. 4 6 1. 2. This arrangement is just the converse of that of Mukhārî given by Ahobala. Shuddha Nāti Mela is, therefore, the converse of Mukhārî Mela. We find them placed at the extreme ends of the Shuddha Madhyama Group

6. 'रिस्तु तीव्रतरो यस्मिन् गांधारस्तीव्र-संज्ञकः ।
धस्तु तीव्रतरः प्रोक्तो निषादस्तीव्रनामकः ।
अवरोहे धगौ नस्तो नाटे रिस्वर-मूर्छना ॥"

Sagîta Pārijāta, 433.

of Melas in the modern South Indian Melakartā Scheme. Mukhārî is now called Kanakāngi and numbered 1; and Shuddha Nātî is now called Chalanāta and numbered 36.

Shuddha Nātî is an "authentic" Mode and has Sa and Pa for its Tonics. It should be written as follows in Just Notation :—

Shuddha Nātî Mela of Rāmāmātya in Just Notation :

*Sa	Go	Ga	Ma	*Pa	No	Na	Sa[1]
14	3	5	9	14	3	5	

—Chrom. A, V. 1.

In Semitonic Notation it has to be expressed by means of the two extra-ordinary Vikrita notes Ri and Di, as stated above.

It is identical with Shuddha Nāta Mela of Vitthala, Pundarika and Somanātha and with Nāta Mela of Venkateshvara.

This is one of the oldest and was for long one of the most popular Chromatic Melas of Indian music, as we find it mentioned not only by most of medieval writers but also by Kallinātha, the famous commentator of Sangîta Ratnākara, who lived more than a century before Rāmāmātya (circa. 1460 A. D.). Kallinātha calls it Natta and mentions as its Vikrita notes Pancha-Shruti Ri and Dha, Antara Ga and Kākalî Ni. This gives the Shruti-intervals : 5. 2. 2. 4. 5. 2. 2, which are exactly the same as what we arrived at from Ahobala's description of Nāta[7].

7. Kallinātha mentions this Mela incidentally in his commentary on Shrîraga of Shārngadeva as one of several instances of departure from the rules of the orthodox Mārga system found in Deshî Rāgas. Pancha-Shruti Ri and Dha were notes quite foreign to the ancient system. He states as follows :—

"नट्ट-देवक्री प्रभृतिष्वृषभ-धैवतयोरन्तर-काकल्यादिम-श्रुति-
द्वयाक्रमणेन प्रत्येकं पंचश्रुतिता च शास्त्रानभिहिता ।"

(Corrected by Rao Bahadur P. R. Bhandarkar with the help of quotation from Rāga Vibodha—Vide 'Sangeeta', September, 1931, p. 30). It should be pointed out that Pancha-Shruti or Tîvratara Ri and Dha of the Northern School are quite different from Pancha-Shruti Ri and Dha of the Southern School. The

The next Mela in the list given above is Shuddha Rāmākriyâ. The Vikrita notes of this Mela are Chyuta Madhyama Ga, Chyuta Panchama Ma and Chyuta Shadja Ni. The Shruti arrangement is 3. 5. 4. 1. 3. 5. 1. If the inter-tetrachordal notes and the mid-note are lowered by one Shruti according to the aforesaid rule of interpretation, we get the arrangement : 2. 5. 4. 2. 2. 5. 2. This arrangement is the same as that of Lochana's Dhanāshrî Samsthāna, which has been shown to be identical with Mode No. 6a of Chromatic Fifth Scale, Group B. It has been shown in Just Notation in the last preceding chapter. It is called Shuddha Rāmākriyā by Venkateshwara and Tulajādhipa, Shuddha Rāmakrî by Pundarîka and Somnātha, and Deshikāra by Vitthala.

The Vikrita notes used in the next Mela of the list called Deshākshî, are Six-Shruti Ri, Chyuta Madhyama Ga, five-Shruti Dha and Chyuta Shadja Ni. From these notes the Shruti arrangement comes to this : 6. 2. 1. 4. 5. 3. 1. If the inter-tetrachordal notes are shifted downwards by one Shruti, we get the disposition : 5. 2. 2. 4. 4. 3. 2. These intervals may be represented by the letters L. S. S. T. T. T. S. The Characteristic Pentachord No. 4, L. S. S. T, points to the fact that the Mela belongs to the Ascending (A) Group of Chromatic Scales. On scrutinising the tables of Modes of this Group we find the Mela to be identical with the First Mode of Chromatic First Scale, Group A. Expressed correctly by means of Shrutis the intervals should be 6. 1. 2. 4. 3. 4. 2. The intervals of this Mela according to Pundarîka, Venkateshwara, Somanātha and Tulajādhipa are identical with those given by Rāmāmātya. In Rāga Mālā Vitthala gives the same intervals of this Mela. But, in Rāga Manjarî Vitthala mentions a Deshākshî, which is a different Mela, as we shall see below. We have seen in the last preceding chapter that Ahobala mentions a Mela named Deshākhya. The Vikrita notes of this Mela are Tîvratara Ri, Tîvra Ga and Tîvra Ni. Substituting Tîvratara Ga and Ni for the last two

former two notes are a Large Tone (Minor Third) above Sa and Pa, while the latter two are only a Tone above Sa and Pa respectively.

notes, we get the intervals : 5 2. 2. 4. 3. 1. 2 or L. S. S. T. T. T. S. Deshākhya Mela of Ahobala is thus practically the same as Deshākshî Mela of Rāmāmātya and the other authors named above. The Tonics of this Mela are Sa and Pa. It should be written as follows in Just Notation :—

Desākshî Mela of Rāmāmātya in Just Notation :

*Sa	Go	Ga	Ma	*Pa	Da	Na	Sa[1]
	14	3	5	9	8	9	5

—Chrom. A, I, 1

In Semitonic Notation Go, the first of the two Thirds above Sa, is to be written as Ri.

The Vikrita notes of Nādarāmakriyā as given by Rāmāmātya are Sādhārana Ga and Chyuta Shadja Ni. The Shrutis are : 3. 3. 3. 4. 3. 5. 1. Here we find the ambiguity in the lower tetrachord due to independent use of Sādhārana Ga, explained above. Lowering the inter-tetrachordal notes by one Shruti we get the intervals : 2. 3. 4. 4. 2. 5. 2. This Shruti arrangement is to be found in Mela Auttarā Gurjarî of Ahobala which is, as seen in the last preceding chapter, identical with Mode No. 3b of Chromatic First Scale, Group A. This Mela is called Nāda Rāmakrî by Vitthala (in Rāga Mālā), Pundarîka and Somanātha, and Bhinna Shadja by Tulajādhipa. Venkateshwara does not include it in his list of nineteen current Melas. Evidently, it had become obsolete or was very rarely used in Southern India in his time. Although, Ahobala, who wrote his book a few decades after Venkateshwara, calls this a 'Northern' (Auttara) Mela, the fact that this Mela is found in older Southern books but not in older Northern books shows that it was imported from Southern India. In the modern Melakartā scheme it is numbered 9 and is called Dhenukā Mela.

Kannada Gaula Mela of Rāmāmātya has kaishika Ni in addition to the Vikrita notes used in Deshākshî, viz. six-

Shruti Ri, Chyuta Madhyama Ga and five-Shruti Dha. The only difference between these two Melas is, therefore, that the Ni of the former is flatter than that of the latter by two Shrutis. So, the Shruti intervals of Kannada Gaula are: 6. 2. 1. 4. 5. 1. 3, which, by lowering the inter-tetrachordal notes by one Shruti, come to 5. 2. 2. 4. 4. 1. 4, i.e. L S S T. T. S. T. Having the Characteristic Pentachord No. 4, L. S. S. T, it is a Mode of an ascending Chromatic Scale. The tables will show that it is to be identified with the First Mode of Chromatic Second Scale, Group A. The tetrachord T. S. T cannot be correctly represented by Shrutis, as the Semitone in it is Major and the two Tones Minor. It is, therefore, useless to try to represent this Mela by means of Shrutis. It is called Karnāta Gauda by Pundarîka, Karnāta by Vitthala in Rāga Mālā and Chhāya Nāta by Tulajādhipa The Shruti intervals which follow from their descriptions are identical with those of Rāmāmātya The intervals of Karnāta Gauda Mela of Somanātha are 6. 2. 1. 4. 4. 2. 3. This is, therefore, also practically the same Mela. Karnāta Mela as described by Vitthala in Rāga Manjarî is, as we shall see below, a different Mode of the same Scale and indentical with Megha Mela of Lochana. The Vikrita notes of Karnāta Gaula Mela of Ahobala are Tîvratara Ri and Tîvra Ga. Substituting Tîvratara Ga for Tîvra Ga, we get the intervals 5. 2. 2. 4. 3. 2. 4, which are almost same as those of Kannada Gaula Mela of Rāmāmātya as interpreted above. They are, therefore, identical Melas. Venkateshwara mentions Kannada Gaula as a Janya Rāga of Shrî Rāga Mela and not as a separate Mela. Shrî Rāga Mela of Venkateshwara is equivalent to Kāfi Mela of modern Hindusthānî music, which has Go and No as its Vikrita notes. It, thus, appears that the Chromatic Mela Kannada Gaula of the time of Rāmāmātya degenerated into a Simple Mela in the time Venkateshwara. Most of the modern Hindusthānî Rāgas of Kānādā Group belong to Kāfi Mela.

The Karnāta Mela of Lochana also belongs to a Primary Scale and has only No as its Vikrita note, as we have seen.

in the last preceding chapter. The Kannada Gaula Mela of Rāmāmātya should be written as follows is Just Notation :—

Kannada Gaula Mela of Rāmāmātya in Just Notation.

*Sa Go Ga Ma *Pa Da No Sa[1]—Chrom A, II, 1.
14 3 5 9 8 6 8

In Semitonic Notation the note Go should be written Ri.

The next Mela in the list Rîti Gaula has for its Vikrita notes five-Shruti Dha and Kaishika Ni. The intervals are : 3. 2. 4. 4. 5. 1. 3. By shifting the inter-tetrachordal notes down by one Shruti, we get, 2. 2. 5. 4. 4. 1. 4. or S. S. L. T. T S. T. If we extend the octave we find in it the Characteristic Pentachord No. (5), T. S. S. L. The Mode tables will show that the Mela is to be identified with the Second Mode of Chromatic First Scale, Group B, the Tonics being Ma and Ni. Its intervals may be correctly expressed in Shrutis by the numbers 2, 1. 6. 3. 4. 2. 4. The only other writer who speaks about this Mela is Somanātha, who calls it Rîti Gauda. In Just Notation this Mela is to be expressed as follows :—

Rîti Gaula Mela of Rāmāmātya in Just Notation.

Sa Rŏ Ră *Ma Pă Da *Nŏ Sa[1]—Chrom. B, I, 2.
5 3 14 8 9 5 9

In Semitonic Notation it should be written thus :

Sa Ro Goo *Ma Pa Da *No Sa[1]

Venkateshwara seems to think that Rāmāmātya gave a wrong description of this Mela. The ground for holding such a view appears to be that a Rāga called Rîti Gaula was sung in his time in a Mela, which he calls Bhairavî, having Go, Do and No as Vikrita notes. Evidently, Rîti Gaula Mela of Rāmāmātya, who flourished more than a century before Venkateshwara, had become obsolete and the name came to be applied to a different Rāga.

The only other Chromatic Mela in Rāmāmātya's list is Revagupti. The author states that this Mela is merged in the Mela of Bauli, which is the same as that of Mālava Gaula.

But, it appears from his descriptions that these Melas cannot be identified with each other. The only Vikrita note used in Revagupti is Antara Ga, while Mālava Gaula has two Vikrita notes, viz., Chyuta Madhyama Ga and Chyuta Shadja Ni. So, even if Chyuta Madhyama Ga be considered to be identical with Antara Ga, the two Melas must be taken to be quite distinct from each other, as the former contains Shuddha Ni while the latter contains Chyuta Shadja Ni. The intervals of Revagupti are : 3. 4. 2. 4. 3. 2. 4. As the author himself lowers Chyuta Madhyama Ga by one Shruti by making it identical with Antara Ga, we need to lower only Ri, Dha and Ni of this Mela by one Shruti. This gives the intervals : 2. 5. 2. 4. 2. 2. 5 or S. L. S. T. S. S. L. The Characteristic Pentachord No. 5 T. S. S. L. points to the fact that it is a Mode of a descending Chromatic Scale. The Mode tables show that it is identical with the Fifth Mode of the Chromatic Third Scale, Group B. In order to express the Mela correctly by means of Shrutis, the intervals should be 2. 5. 2. 4. 2. 1. 6. The tetrachord 2. 5. 2 is a Secondary one and the Large Tone in it, which consists of 12 Anushrutis, is not a Minor Third. The only other author who mentions this Mela is Somanātha. In Just Notation this Mela, which has Sa and Ma for its Tonics, is to be written as follows :—

Revagupti Mela of Rāmāmātya in Just Notation :

*Sa	Rŏ	Ga	*Ma	Pa	Do	Da	Sa[1]	Chrom. B, III, 5
5	12	5	9	5	3	14		

In Semitonic Notation it should be written thus :

*Sa Ro Ga *Ma Pa Do Noo Sa[1]

Of the three Secondary Melas mentioned by Rāmāmātya Mālava Gaula is identical with Gaurî Mela of Lochana. We have just stated that the Vikrita notes used in it are Chyuta Madhyama Ga and Chyuta Shadja Ni. So, its intervals are : 3. 5. 1. 4. 3. 5. 1. By lowering the inter-tetrachordal notes by one Shruti we get : 2. 5. 2. 4. 2. 5. 2. This is identical with the Shruti dispositions of Gaurî Mela of Lochana as shewn in the last preceding chapter. It is, therefore, the First Mode of

Secondary Fifth Scale. It is one of the most popular Scales of of Southern India and is mentioned by all writers on South Indian music. It appears from Rāgamanjarî that in Vitthala's time it was called Gaudî, which is phonetically similar to Gaurî of Northern India. Pundarika and Somanātha call it Mālava Gauda. In modern times it is called Māyāmālava Gaula in South India and Bhairava in North India.

The next Secondary Mela of Rāmāmātya is Āharî. Its Vikrita notes are five-Shruti Ri, Sādhārana Ga and Chyuta Shadja Ni. The intervals, therefore, are : 5. 1. 3. 4. 3. 5. 1. If the inter-tetrachordal notes are lowered by one Shruti the intervals come to 4. 1. 4. 4. 2. 5. 2. i.e. T. S. T. T. S. L. S. This Mela has practically the same intervals as those of Ābhîrikā of Ahobala, which has been shown to be identical with the First Mode of Secondary Second Scale. It is called Āherî in Rāga Manjarî and Ābhîrî in Rāga Mālā by Vitthala, Abhîrî by Pundarîka, Abhira Nāta by Somanātha, and Āharî or Ahîrî by Venkateshwara. In the modern Melakartā Scheme of South India it is numbered twenty-one. The Mela has been shewn in Just Notation in the last preceding chapter.

The third Secondary Mela of Rāmāmātya is Vasanta Bhairavî. Its Vikrita notes are Chyuta Madhyama Ga and Kaishika Ni. The intervals are 3. 5. 1. 4. 3. 3. 3. Here is an instance of ambiguous tetrachord represented by the numbers 3. 3. 3. Lowering as usual the intertetrachordal notes by one Shruti, we get 2. 5. 2. 4. 2. 3. 4, i.e., *S. L. S.* T. S. T. *T.* If the octave is extended the Mela would be found to contain the Characteristic Pentachord No. 3 T. S. L. S, which belongs to either the Second or the Third Secondary Scale. The Mode tables will show that it is identical with the Fifth Mode of Secondary Second Scale. It is correctly expressed in Shrutis by the numbers given above. It has Sa and Ma for its Tonics and should be written as follow in Just Notation :—

Vasanta Bhairavî Mela of Rāmāmātya in Just Notation.

*Sa	Rŏ	Ga	*Ma	Pa	Do	Nŏ	Sa[1]	Sec. II, 5
5	12	5	9	5	8	9		

In Semitonic Notation the comma signs of the of the second and seventh notes are to be omitted.

This Mela is called by the same name by Somanātha, Venkateshwara and Tulajendra. Vitthala calls it Bhairava or Āsāvarî in Rāga Mālā, and Pundarîka calls it Hijej. In modern Hidnusthānî music a Rāga called Shivamata Bhairava belongs to this Mela. It differs from the well-known and popular Bhiarava in having a flat Ni. A mixed form of the Rāga is also found in which both the Nishâdas are used.

Of the three Primary Melas of Rāmāmātya, Sāranga Nāta has five-Shruti Ri, Chyuta Madhyama Ga, Five-Shruti Dha and Chyuta Shadja Ni as its Vikrita notes. Its intervals are 5. 3. 1. 4. 5. 3. 1. If the four inter-tetrachordal notes are lowered by one Shruti the intervals become 4. 3. 2. 4. 4. 3. 2. These are identical with the intervals of the Shuddha Mela of modern Northern Indian music. Sāranga Nāta Mela is, therefore, identical with the latter Mela. It is called Kedāra by Lochana, Vitthala and Pundarîka ; Kedārî or Shankarābharana by Ahobala ; Mallārî by Somanātha and Shankarābharana by Venkateshwara and Tulajādhipa. In modern South Indian music it is called Dhîra-Shankarābharana and is numbered twenty- nine in the Melakartā Scheme.

The next Primary Mela of Rāmāmātya is Shrî Rāga. Its Vikrita notes are five-Shruti Ri, Sādhārana Ga, five-Shurti Dha and Kaishika Ni. The intervals are 5. 1. 3. 4. 5. 1. 3. Lowering the inter-tetrachordal notes by one Shruti we get 4. 1. 4. 4. 4. 1. 4 i.e., T. S. T. T. T. S. T. The Mela contains the Pentachord No. 1 T. T. T. S. characteristic of Primary Scales and is, therefore, a Mode of one of those Scales. In Semitonic Notation the Mela is to be written with the two Vikrita notes Go and No. It is identical with the Mela of the same name mentioned by Venkateshwara and Tulajādhipa. The Shruti intervals of the Shuddha Mela of the medieval writers of Northern India, Lochana, Ahobala and others, are, as we have seen, 3. 2. 4. 4. 3. 2. 4. The position of the Tones and Semitones are the same as those of Shrî Rāgā Mela of the aforesaid three South Indian writers as explained above. Shrî

Rāga Mela of Southern India may, therefore, be considered to be equivalent to the Shuddha Mela of medieval writers of Northern India.

The only other Primary Mela mentioned by Rāmāmātya is Hindola. Its Vikrita notes are five-Shruti Ri, Sādhārāna Ga and Kaishika Ni. The intervals are 5. 1. 3. 4. 3. 3. 3. Here is another instance of ambiguous tetrachord expressed by three consecutive three-Shruti intervals. Lowering the inter-tetrachordal notes by one Shruti, we get the intervals 4. 1. 4. 4. 2. 3. 4 or T. S. T. T. S. T. T. On extending the octave we find the Pentachord No. 1 T. T. T. S, which is characteristic of Primary Scales. The Mela is, therfore, a Mode of one of these Scales. In Semitonic Notation it is to be indicated by the Vikrita notes Go, Do and No. It is called by the same name by Vitthala both in Rāga Manjarî and Rāga Mālā. Venkateshwara and Tulajādhipa call it Bhairavî. Ahobala's Bhairavî is also practically the same Mela. Lochana calls it Mukharî. In modern Melakartā scheme it is named Nata Bhairavî and numbered 20. Bhatkhande calls it Āsāvarî Mela.

(b). Fourteen correct Melas of Rāmāmatya :

The fourteen correct Melas of Rāmāmātya together with the Vikrita notes of his Primary Melas in Semitonic Notation and Scales and Modes of his Secondary and Chromatic Melas are given below :—

Melas of Rāmāmātya.

1.	Sāranga Nāta	...	... Shuddha notes
2.	Shrî Rāga	...	... No Go
3.	Hindola	...	... No, Go, Do
4.	Āharî	...	... Sec. II, 1
5.	Vasanta Bhairavî	...	... Sec. II, 5
6.	Mālava Gaula	...	... Sec. V, 1
7.	Deshākshî	...	... Chrom. A, I, 1
8.	Nāda Rāmakriyā	...	... Chrom. A, I, 3b
9.	Kannada Gaula	...	... Chrom. A, II, 1
10.	Shuddha Nātî	...	... Chrom. A,V. 1
11.	Rîti Gaula	...	... Chrom. B, I, 2
12.	Revagupti	...	... Chrom. B, III, 5
13.	Mukharî	...	... Chrom. B, V, 5.
14.	Shuddha Rāmakriyā	...	... Chrom. B, V, 6a.

Rāmāmātya may justly be considered as the originator of the modern South Indian system of musical theory. The basic principles of his system have remained unchanged till the present day and the modern system is substantially identical with his. But, his scheme of Vikrita notes was not accepted by medieval theorists for about a century. For, we find that writers on music, who came between him and Venkateshwara, used quite different nomenclatures of their own. Vitthala, Pundarîka and Somanātha were the three notable authors who wrote during this period.

C. VITTHALA IN RĀGA-MANJARÎ.

(a). Vikrita notes of Vitthala : Vitthala wrote his books only a few decades after Rāmāmātya. He did not follow the ancient method of ascertaining the position of a note from the number of Shrutis intervening between it and the next preceding note as was done by Rāmāmātya. Like writers of the Northern school he took the positions of the Shuddha notes as fixed and ascertained the positions of a Vikrita note from the number of Shrutis by which it was removed from the Shuddha note of the same denomination. As the Shuddha notes of the Southern School were all in their lowest position in the Scale, Vitthala had to move them only upwards in order to have his Vikrita notes. This upward movement was called by him a *gati*. When a Shuddha note was raised by one Shruti it was called *Ekagati* (of one move). Similarly, notes raised by two, three and four Shrutis were called Dvi-gati (of two moves), Tri-gati (of three moves) and Chatur-gati (of four moves) respectively. This method is similar to that adopted by Lochana and other Northern Indian writers. The only difference between the two methods is that in the Northern School notes were sometimes raised when they were called *Tîvra* and sometimes lowered when they were called *Komala*, while in Vitthala's scheme notes were always raised and never lowered. But, the two methods were substantially the same in their conception. When Vitthala used the words Ekagati, Dvigati. Tri-gati and Chaturgati he expressed the same ideas as were expressed by the words Tîvra, Tîvratara, Tîvratama and Ati-tîvratama used by Lochana. In

his Rāga-Manjarî Vitthala also speaks of an older system, according to which the notes Ri and Dha were called Kaishikî, Urdhakhala and Atyuchhrankhala when they became Eka-gati, Dvi-gati and Tri-gati respectively. Chaturgati Ga was known as Urdhakhala Ga. The first three moves of Ma were called Manu, Pakshāntika and Nripa. The words Sādhārana, Antara and Kākalî were also used. In order, evidently, to avoid these uncouth expressions which give no idea about the positions of the notes Vitthala introduced the simple and useful method of *gatis*.

The notes Sa and Pa were not permitted to be moved up, as evidently they were considered to be unalterable notes. Of the other five notes only Ga was allowed to have four moves, the remaining four being each allowed to have three moves only.[8] The number of Vikrita notes would, therefore, be sixteen. But, in actual practice the author used only twelve of these, the four notes Dvi-gati Ga, Eka-gati Ma, Dvi-gati Ma and Dvi-gati Ni being never brought to use. Dvi-gati Ga and Ni were identical with Antara and Kākalî, which were thus avoided by the author. Dvi-gati and Tri-gati Ri and Dha correspond with Pancha-Shruti and Shat-Shruti Ri and Dha of Rāmāmātya. Eka-gati Ga is Sādhārana Ga and Tri-gati Ga is Chyuta-Madhyama Ga. Tri-gati Ma is Chyuta Panchama Ma. Eka-gati Ni is Kaishika Ni and Tri-gati Ni is Chyuta Shadja Ni. These nine notes are common to both the authors. Vitthala uses three additional notes viz., Eka-gati Ri, Eka-gati Dha and Chatur-gati Ga. The two notes Eka-gati Ri and Dha are identical with four-Shruti Ri and Dha peculiar to Shrî-rāga of Kallinātha. They cannot be considered as extra-ordinary notes, as in practical use they are not distinguished from Pancha-Shruti Ri and Dha. Chatur-gati Ga is an extra-ordinary note, being coincident with Shuddha Ma. It corresponds with Atitîvratama Ga of Lochana and is used only in

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8 "असपाः पूर्व-पूर्वास्ते संचरंत्युत्तरोत्तम्।
त्रिस्त्रिर्गतिस्ते प्रत्येकं याति गश्च चतुर्गतीः॥"

the Chromatic Mela of Sāranga. It thus appears that Vitthala added one extraordinary note to the four of Rāmāmātya.

(b). Twenty Melas in Rāga Manjarî examined: Of the two books written by Vitthala Rāga Manjarî deals with South Indian and Rāga Mālā with North Indian music, as we have shown in the last preceding chapter. In Rāga Manjarî Vitthala gives a list of twenty Melas. Seven of these are to be found in Rāga Mālā. These are Todî, Hindola, Gaudî, Shuddha Nāta, Sāranga, Kalyāna and Deshikāra. Āhîrî and Hāmîra of Rāga Manjarî are called Ābhîrî and Hāmîra Nāta in Rāga Mālā. Shrî Rāga, Deshākshî and Karnāta of Rāga Manjarî differ in tonality from Rāgas of the same names found in Rāga Mālā. Nāda Rāmākrî of the two books is the name for two different Melas. These differences in the two books of the same author are evidently due to the fact that they deal with different systems of music of two distant parts of India.

Of the Melas mentioned in Rāga Manjarî, Varātî does not admit of a rational explanation. It is identical with Shuddha Varātî of Rāmāmātya, which, as we have stated above, is a wrong Mela. The Vikrita notes used in Hijej and Nāda Rāmakrî, which is different from the Mela of the same name found in other books of the Southern School, are identical with those of Todî. The three Melas Varātî, Nāda Rāmakrî and Hijej of Rāga Manjarî must, therefore, be left out of account.

Of the remaining seventeen Melas nine are Chromatic, three Secondary and five Primary. The names of the Chromatic Melas are given below :—

1. Mukhārî	4. Sāranga	7. Deshākahî
2. Shuddha Nāta	5. Karnāta	8. Soma Rāga
3. Deshikāra	6. Kāmoda	9. Kalyāna

The first two are identical in tonality with Melas of Rāmāmātya of the same names, and the third Deshikāra is identical with his Shuddha Rāmakriyā.

The fourth Mela Sāranga has for its Vikrita notes Ri of two moves, Ga of four moves, Ma of three moves, Dha of

three moves and Ni of three moves. The Shruti intervals are 5. 4. 3. 1. 6. 2. 1. Ga of four moves is coincident with Ma. If Ri, Ma, Dha and Ni are lowered by one Shruti each the intervals become 4. 5. 2. 2. 5. 2. 2. or T. L. S. S. L. S. S. These correspond with the intervals of Sāranga-Mela of Lochana. Vitthala's Sāranga is, therefore, the Fourth Mode of Chromatic Fifth Scale, Group A. The only two other theorists of South India who mention this Mela are Pundarîka and Somanātha.

The Vikrita notes of Karnāta Mela are Ri of two moves and Ga, Dha and Ni of three moves. The intervals are 5. 3. 1. 4. 6. 2. 1. By lowering the inter-tetrachordal notes Ri, Ga, Dha and Ni by one Shruti, the intervals come to 4. 3. 2. 4. 5. 2. 2. or T. T. S. T. L. S. S. These correspond with the intervals of Megha of Lochana. Karnāta of Vithala is, therefore, identical with the latter Mela, which has been shown to be the Fourth Mode of Chromatic Second Scale, Group A.

The remaining four Chromatic Melas: Kāmoda, Deshākshî, Soma and Kalyāna are not to be found in Rāmāmātya's book. These appear to have been introduced into the orthodox Southern system for the first time by Vitthala. The Vikrita notes of Kāmoda are Ga of one move, Ma of three moves and Ni of one move. The intervals are 3. 3. 6. 1. 3. 3. 3. Lowering the inter-tetrachordal notes and the mid note by one Shruti each we get: 2. 3. 6. 2. 2. 3. 4 or S. T. <u>L. S. S. T.</u> T. The underlined letters represent Pentachord No. (4), characteristic of ascending Chromatic Scales. By examining the Mode tables of these Scales, the Mela will be found to be identical with the Sixth Mode of Chromatic Second Scale, Group A. The sharp fourth is in reality flat fifth (Po). The Tonics are Ga and Ni. This Mela cannot be correctly expressed by means of Shrutis, as it includes a Major Semitone. In Just Notation the Mela should be written thus:

Kāmoda Mela of Vitthala's Rāga Manjarî in Just Notation:

Sa	Ro	*Go	Po	Pa	Do	*No	Sa¹	-Chrom. A, II, 6
6	8	14	3	5	9	8		

In Semitonic Notation only the note Po is to be altered and written Mi. The only other book which contains this Mela is Sadrāga Chandrodaya of Pundarîka. It is quite distinct from the Mela of Rāga Kāmoda of modern Hindusthānî music, which is Mi-Mela of Primary Scales. It corresponds with Mela No. 44 of the Melakartā Scheme.

The next Mela Deshākshî differs from the Mela of the same name described by Rāmāmātya in only one of its notes. Its Vikrita notes are Ri, Ga and Ni all of three moves. The intervals are 6. 2. 1. 4. 3. 5. 1. Lowering Ri, Ga, Dha and Ni by one Shruti each, we get 5. 2. 2. 4. 2. 5. 2 or L. S. S. T. S. L. S. The underlined letters indicate the same characteristic Pentachord No. (4) as in the previously explained Mela. The Mode tables of the ascending Chromatic Scales will show that the Mela is identical with the First Mode of Chromatic Third Scale, Group A. It has for its Tonics Sa and Pa, and can be expressed in Shrutis by the numbers 6. 1. 2. 4. 2. 5. 2. The Large Tone represented by 5 is not a Minor Third. In Just Notation the Mela is to be written thus :

Deshākshî Mela of Vitthala's Rāga Manjarî in Just Notation :

*Sa	Go	Ga	Ma	*Pa	Do	Na	Sa¹	- Chrom. A, III, 1.
14	3	5	9	5	12	5		

In Semitonic Notation only the note Go has to be written as Ri. It will be observed that this Mela differs from the the Deshākshî of Rāmāmātya in its sixth degree, the latter having Da instead of Do. In Rāga Mālā of Vitthala this Mela is called Gurjarî. It is not to be found in any other work of either school of music. It corresponds with No. 33 of Melakartā Scheme.

Soma Rāga Mela of Vitthala has only one Vikrita note, viz., Ni of one move. The intervals, therefore, are 3. 2. 4. 4. 3. 3. 3. Lowering the inter-tetrachordal notes by one Shruti each, we get 2. 2. 5. 4. 2. 3. 4 or S. S. L. T. S. T. T. By extending the octave we get Pentachord No. (5), T. S. S. L which is characteristic of descending Chromatic Scales. The Mode tables of

these Scales will show that the Mela is identical with the Second Mode of Chromatic Second Scale, Group B. It has Ma and Ni for its Tonics. Having a Major Semitone, it cannot be be correctly expressed by means of Shrutis. In Just Notation it is to be written as follows :—

Soma Rāga Mela of Vitthala's Rāga Manjarî in Just Notation :

Sa Rŏ Ră $\overset{*}{\text{Ma}}$ Pă Do $\overset{*}{\text{Nŏ}}$ $\overset{1}{\text{Sa}}$ -Chrom. B, II, 2.
5 3 14 8 6 8 9

This Mela is not to be found in any other work. It corresponds with No. 2 of the Melakartā scheme.

Kalyāna of Vitthala differs from that of Pundarîka in one note. The Vikrita notes of Vitthala's Kalyāna are Ri of two moves, Ga of three moves, Ma of three moves and Ni of three moves. The intervals are 5. 3. 4. 1. 3. 5. 1. Lowering the inter-tetrachordal notes and the mid-note by one Shruti, we get 4. 3. 4. 2. 2. 5. 2 or T. T. <u>T. S. S. L.</u> S. The underlined letters indicate Pentachord No. 5, characteristic of descending Chromatic Scales. From the Mode tables of these Scales we find that the Mela is identical with the Sixth Mode of Chromatic Fourth Scale, Group B. The Tonics are Ga and Ni. In Shrutis the Mela can be expressed by the numbers 4. 3. 4. 2. 1. 6. 2. It has to be written as follows in Just Notation :—

Kalyāna Mela of Vitthala's Rāga Manjarî in Just Notation :—

Sa Ra $\overset{*}{\text{Ga}}$ Mî Pa Pi $\overset{*}{\text{Na}}$ $\overset{1}{\text{Sa}}$ -Chrom. B. IV, 6.
9 8 9 5 3 14 5

In Semitonic Notation the note Pi is to be written as Do. The only other book in which this Mela is to be found is Rāga Mālā of Vitthala. It corresponds with No. 63 of the Melakartā Scheme.

The three Secondary Melas of Rāga Manjarî are :

1. Gaudî 2. Āherî 3. Hamîra

Of these Gaudî is, as we have mentioned above, identical with Gaurî of Lochana and with Mālava Gaula of Rāmāmātya ; and Āherî is identical with Āharî of Rāmāmātya.

The Vikrita notes of Hamîra are Ri of two moves, Ga of three moves and Ni of three moves. The intervals are 5. 3. 1. 4. 3. 5. 1. Lowering the inter-tetrachordal notes by one Shruti, we get 4. 3. 2. 4. 2. 5. 2 or T. T. S. T. S. L. S. The underlined letters indicate Pentachord No. 3, which is characteristic of Secondary Second, Third and Fifth Scales. The Mode tables of these Scales will show that the Mela is to be identified with the First Mode Secondary Third Scale. The Tonics are Sa and Pa. The Mela is correctly expressed in Shrutis by the last-mentioned numbers. In Just Notation it should be written as follows :—

Hamîra Mela of Vitthala's Rāga Manjarî in Just Notation :

*Sa	Ra	Ga	Ma	*Pa	Do	Na	Sa[1]—Sec. III, 1.
9	8	5	9	5	12	5	

No change in the notes is required for the Semitonic Notation. This Mela is also found in Sadrāga Chandrodaya of Pundarîka. It is called Hamîra Nāta in Rāga Mālā and Hamîra in Rāga Vibodha of Somanātha. It is numbered 27 in the Melakartā Scheme.

The five Primary Melas of Rāga Manjarî are :

1. Kedāra
2. Shrî Rāga
3. Mālava Kaishika
4. Hindola
5 Todî

Of the five Primary Melas Kedāra Mela is the same as Sāranga Nāta Mela of Rāmāmātya. It is equivalent to modern North Indian Shuddha Scale, which, as we have seen, was also called Kedāra by Lochana.

The Vikrita notes of Vitthala's Shrî Rāga are Ri of one move, Ga of three moves, Dha of one move and Ni of one move. The intervals are 4. 4. 1. 4. 4. 2 3. It will be observed that Ri and Dha of this Mela are four-Shruti notes.

The only other Mela of Vitthala in which these notes occur is Mālava Kaishika. We have seen that they are peculiar to Shrî Rāga of Kallinātha. They are not to be found in Svaramela Kalānidhi of Rāmāmātya. Neither are they mentioned in Chaturdandiprakāshikā of Venkateshawara. In fact, they are inconsistent with the scheme of Shuddha and Vikrita notes expounded by these writers. It is noteworthy that in Rāga Mālā Vitthala uses these notes only in Shrî Rāga Mela, which is identical with Mālava Kaishika Mela of Rāga Manjarî, as we shall see presently. Shrî Rāga of Raga Manjarî differs from that of Rāga Mālā in one of its notes. Pundarîka and Somanātha are the other two writers of the Southern school, who also use the above mentioned two four-Shruti notes in Shrî Rāga Mela only. It is evident from these facts that all the above mentioned South Indian theorists borrowed this widely known North Indian Mela from Kallinātha. We need not, under these circumstances, lower the inter-tetrachordal note of the afore-said Melas, which have four-Shruti Ri and Dha. The intervals of Shrî Rāga Mela of Rāga Manjarî may, therefore, be represented by the letters T. T. S. T. T. S. T. From these we have the Primary Mela of one flat (No). Here then we have an addition to the number of Primary Melas of Rāmāmātya. If we assume that Ri was purposely made four-Shruti in order to make it consonant to Pa as was done by Kallinātha in his Shrî Rāga, then the Tonics would be Sa and Pa and the Mela would be identical with the First Mode of Primary Second Scale.

The Vikrita notes of Mālava Kaishika Mela of Rāga Manjarî are Ri, Ga, Dha and Ni, all of one move. The intervals are 4. 2. 3. 4. 4. 2. 3. These are exactly the same as those of Kallinātha's Shrî Rāga. This Mela is, therefore, identical with the First Mode of Primary Third Scale, having Sa and Pa as its Tonics. It is called Shrî Rāga by Pundarîka and Somanātha, who evidently took it from Kallinātha, as we have stated above. In his Rāga Mālā also Vitthala calls it Shrî Rāga. Hindola Mela of Rāga Manjarî fs identical with the Mela of the same name mentioned by Rāmāmātya.

The Vikrita notes of Todî are Ga of one move, and Ni of one move. The intervals are 3. 3. 3. 4. 3. 3. 3. This is, a typical case of ambiguous tetrachords. Lowering the inter-tetrachordal notes by one Shruti we get 2. 3. 4. 4. 2. 3. 4. or S. T. T. T. S. T. T. From these we get the Primary Mela of four flats (Ro, Go, Do, No). This Mela is not to be found in Rāmāmātya's book and is, therefore, a further addition to the list of Primary Melas of South India. The number of Primary Melas, which was three in Rāmāmātya's time, became five in Vitthala's time.

(c). Seventeen correct Melas in Rāga Manjarî : The seventeen correct Melas of Vitthala's Rāga Manjarî with the Semitonic Vikrita notes of the Primary Melas and the Scales and Modes of Secondary and Chromatic Melas are stated below.

Melas in Vitthala's Rāga Manjarî.

1.	Kedāra	...	Shuddha
2.	Shrî Rāga	...	No
3.	Mālava Kaishika	...	No Go
4.	Hindola	...	No Go Do
5.	Todî	...	No, Go Do Ro
6.	Āherî	...	Sec. II, 1
7.	Hamîra	...	Sec III, 1
8.	Gaudî	...	Sec. V, 1
9.	Karnāta	...	Chrom. A, II, 4
10.	Kāmoda	...	Chrom. A, II, 6
11.	Deshākshî	...	Chrom. A, III, 1
12.	Shuddha Nāta	...	Chrom. A, V, 1
13.	Sāranga	...	Chrom. A, V, 4
14.	Soma Rāga	...	Chrom. B, II, 2
15.	Kalyāna	...	Chrom. B, IV, 6
16.	Mukhārî	...	Chrom. B, V, 5
17.	Deshikāra	...	Chrom. B, V, 6a

CHAPTER XI.

MELAS OF SOUTHERN INDIA (Continued).

A. PUNDARÎKA IN SADRĀGA CHANDRODAYA.

(a). Vikrita notes of Pundarîka : Pundarîka, a son of Vitthala, wrote his book Sadrāga Chandrodaya in the last quarter of the 16th century A.D., as we have shown in a preceding chapter. In describing his Melas he adopted a nomenclature of Vikrita notes, which is quite different from that of Vitthala. His scheme was similar to that of Rāmāmātya in some respects. Like him he used the names Sādhārana Ga and Kaishika Ni, though he sometimes also called them Tri-Shruti Ga and Tri-Shruti Ni. The notable differences between the schemes of the two theorists were that Pundarîka did not give different names to coincident notes and that he used the word 'Laghu' instead of the word 'Chyuta' used by Rāmāmātya. Pancha-Shruti and Shat-Shruti notes had no place in Pundarika's scheme. Further, unlike Rāmāmātya, he did not consider Laghu (Chyuta) Madhyama, Panchama and Shadja as different positions of Gāndhāra, Madhyama and Nishāda respectively. Consequently, he had to use two consecutive notes of the same denomination in some of his Chromatic as well as Primary Melas. For instance, his Sāranga Mela contains both Laghu and Shuddha Panchamas and his Kedāra Mela contains both Laghu and Shuddha Madhyamas. Two notes called Chatuh-Shruti Ri and Dha were created by him especially for his Shrî-Rāga Mela, which was evidently taken from Kallinātha. Another note especially created for his Devakrî Mela was Pancha-Shruti Ma, which was, as we shall see below, practically identical with Atitîvratama Ga of Lochana and Chatur-gati Ga of Vitthala. Like the last named author he does not mention the Antara and the Kākalî.

(b). Nineteen Melas of Pundarîka examined : Pundarîka speaks about nineteen Melas. Of these four are Primary, five

Secondary and nine Chromatic. One of his Melas called Shuddha Varāti admits of no explanation. This wrong Mela is, strangely enough, found in most of South Indian works on music.

The four Primary Melas of Pundarîka are : Kedāra, Shrî Rāga, Hindola and Todî. Kedāra is identical with the Mela of same name found in Vitthala's Rāga Manjarî and also with Sāranga Nāta Mela of Rāmāmātya.

It is equivalent to Kedāra Samsthāna of the northern theorist Lochana and to the Shuddha Mela of modern Hindusthānî music. Shrî Rāga Mela is identical with Kallinātha's Shrî Rāga, as it contains the two four-Shruti notes Ri and Dha peculiar to it. It is, therefore, a NoGo Mela, which must be identified with the First Mode of Primary Third Scale. Hindola Mela is described as having three-Shruti Ga and Ni. The Vikrita notes of Pundarîka's Todî Mela are Sādhārana Ga and Kaishika Ni. Apparently, there is no difference between these two Melas of Pundarîka and both of them have to be identified with Primary NoGoDoRo Mela, as three-Shruti Ga and Ni are identical with Sādhārana Ga and Kaishika Ni. We have seen that Hindola Mela of Svaramela Kalānidhi, Rāga Manjarî and Rāga Mālā is Primary No Go Do Mela. Todî is Primary NoGoDoRo Mela according to all South Indian authors. Pundarîka appears to have made a careless statement about Hindola as will be seen from the fact that Rāga Hindola is, according to him, devoid of Ri. There being no Ri in it, Hindola of Pundarîka must be taken as NoGoDo Mela in order to distinguish it from his Todî Mela.

Of the five Secondary Melas of Pundarîka Mālava Gaula, Ābhîrî, Hijej and Hamîra are identical with Mālava Gaula, Āharî, Vasanta Bhairavî and Hamîra of Rāmāmātya. Kalyāna Mela of Pundarîka, is a Secondary Mela, which is not to be found in any other work. Its notes are Shuddha Sa, Ga, Pa and Dha, Sādhārana Ga, Laghu Pa and Laghu Sa. It does not contain Ri and Ma. Shuddha Ga and Laghu Pa stand for these notes. The intervals are 5. 1. 6. 1. 3. 5. 1. Lowering the intertetrachordal and the mid notes by one Shruti each, we get 4. 1. 6. 2. 2. 5. 2, i.e., T. S. L. S. S. L. S. The pentachord repre-

sented by T. S. L. S. is Charactersistic Pentachord No. 3 belonging to Secondary Second, Third and Fifth Scales. The Mode tables of these Scales will show that the above Mela is identical with the Fourth Mode of Secondary Fifth Scale. In order to represent it correctly by means of Shrutis the intervals should be 4. 2. 5. 2. 2. 5. 2. In Just Notation it should be written thus :—

Kalyāna Mela of Pundarîka in Just Notation :

Sa	Ra	Go	Mî	Pa	Do	Na	Sa[1]	—Sec. V, 4
	9	5	12	5	5	12	5	

Being a tetrachordal Scale it has Ri and Pa as Tonics of one of the tetrachords and Pa and Sa as those of the other.

Of the nine Chromatic Melas, Deshākshî, Nāda Rāmakrî, Karnāta Gauda, Shuddha Nāta and Mukhārî are identical with Deshākshî, Nādarāmakriyā, Kannada Gaula, Shuddha Nātî and Mukhārî respectively of Rāmāmātya, Shuddha Rāmakrî is identical with Dhanāshrî of Lochana, Shuddha Rāmakriyā of Rāmāmātya and Deshikāra of Vitthala in both his books. Kāmoda is identical with the Mela of the same name found in Rāga Manjarî of Vitthala. Devakrî Mela of Pundarîka consists of the seven notes : Shuddha Sa, Ga, Pa and Ni, Laghu Sa and Pa, and five-Shruti Ma[1]. The intervals, therefore, are 5. 5. 2. 1. 5. 3. 1. As Shudda Ga of South India

1. "शुद्धौ सगौ शुद्धपनी तथैव लघ्वादिकौ षड्जपंचमौ च ।
पंचश्रुतिर्मश्च यदा भवेत् तु देवक्रियायाः कथितः स मेलः ॥"
Sadrāga Chandrodaya.

The second word of this verse in printed books is found to be समौ. This is evidently a misreading, as it would give three Madhyamas, taking Laghu Panchama as equivalent to Tîvra Madhyama, and thus make the mela inexplicable. We think that the letter ग has been misread as म, as the two letters being similar in form are apt to be confused with each other in an indistinct old manuscript. Moreover, it is to be noticed that five-Shruti Ma becomes meaningless without Shuddha Ga. We have, therefore, made the above correction which makes the Mela explicable.

is identical with Shuddha Ri of North India, five-shruti Ma of Pudarîka is identical with Atitîvratama Ga of Lochana and Chatur-gati Ga of Vitthala and, therefore, separated from Shuddha Ga by a Large Tone. The same interval is expressed in three different ways by the three authors. The notes Ga and Ma of Pundarîka's Devakrî Mela are, therefore, practically identical with Ri and Ga of Lochana's Sāranga Mela, both of these pairs of notes being separated by a Large Tone. Each of these Melas contain two Madhyamas. The lower one is called five-shruti Ma by Pundarîka and Atitîvratama Ga by Lochana and the higher one Laghu-Pa by Pundarîka and Tîvratara Ma by Lochana. Devakrî is, therefore, a Chromatic Mela like Sāranga. Placing the inter-tetrachordal and mid notes of Devakrî one Shruti lower we get the intervals 4. 5. 2. 2. 4. 3. 2. or T. L. S. S. T. T. S. The Characteristic Pentachord No. 4, L. S. S. T shows that the Mela is a Mode of an Ascending Chromatic Scale. The Mode tables of these Scales will show that the Mela is identical with the Seventh Mode of Chromatic Second Scale, Group A, the Tonics being Shuddha Ri and Dha of modern notation, which are called by Pundarîka Shuddha Ga and Ni respectively. It should be written as follows in Just Notation :—

Devakrî Mela of Pundarîka in Just Notation :

Sa	*Rā	Ma	Mi	Pā	*Da	Nā	Sa[1]
8	14	3	5	9	8	6	

—Chrom. A, II, 7

In Semitonic Notaion it shuld be written as :—

Sa *Ra Gi Mi Pa *Da Na Sa[1]. This Mela cannot be correctly expressed by means of Shrutis as the last interval is a Major Semitone. Neither this Mela nor the peculiar five-Shruti Ma contained in it is to be found in any Northern or Southern book on music.

Sāranga of Pundarîka is identical with the Mela of the same name found in the books of Lochana and Vitthala. According to Pundarîka its notes are Shuddha Sa, Ga, Ma and

Pa, Laghu Sa and Pa aud Kaishika Ni. Here Shuddha Ga, Shuddha Ma, Laghu Pa, Kaishika Ni and Laghu Sa stand for Ri of two moves, Ga of four moves, Ma of three moves, Dha of three moves and Ni of three moves respectively of Vitthala's books. The intervals are 5. 4. 3. 1. 6. 2. 1 in these books. If the first interval of five-Shrutis be taken as a Large Tone made up of a Tone of three Shrutis and a Semitone of two Shrutis, the second interval of four Shrutis must be taken as a Tone. But, we have shown in the preceding chapter that the interval of three Shrutis above Sa is in actual practice treated as a Semitone by Southern theorists. The first interval of five Shrutis must, therefore, be regarded not as a Large Tone, but as a Tone of four Shrutis made up of two Semitones. The second interval of four Shrutis should, therefore, be regarded as a Large Tone of five Shrutis. Pundarîka seems to have been conscious of this anomalous situtation in the case of his Devakrî Mela, and probably tried to improve it by placing Madhyama one Shruti higher and thus made the second interval a five-Shruti one, leaving us in no doubt regarding the character of that interval as a Large Tone. It is, however, difficult to understand why Pundarîka followed a different course in the case of Sāranga Mela. It seems that he thought it improper to differ from his father Vitthala in his explanation of that Mela. Lochana was not faced with the aforesaid difficulty, as he did not commit the great blunder of treating a three-Shruti interval as a Semitone like theorists of the Southern School. The second and third notes of his Sāranga Mela are Shuddha Ri and Atitîvratama Ga, which is coincident with Shuddha Ma[2]. The first two intervals of his Sāranga are, therefore, 3 and 6 Shrutis. The first of these intervals is a Tone and the second a Large Tone. There is, thus, no ambiguity in his explanation of the Mela. There is, however, no doubt that the Sāranga Mela of all these authors is identical in tonality, though it is explained by them in different ways. Venkateshwara did not include Devakrî and Sāranga in his

2. "गांधारः शुद्धमध्यमतां व्रजेत्।"

list of Melas. Neither was it possible for him to include them in his Melakartā Scheme.

(c). Eighteen correct Melas of Pundarîka : The Vikrita notes in Semitonic Notation of Pundarîka's Primary Melas and the Scales and Modes of his Secondary and Chromatic Melas are given below.

Melas of Pundarîka.

1.	Kedāra ...	Shuddha Notes
2.	Shrî Rāga ...	No Go
3.	Hindola ...	No Go Do
4.	Todî	No Go Do Ro
5.	Ābhîrî ...	Sec. II, 1.
6.	Hijej ...	Sec. II, 5.
7.	Hamîra ...	Sec. III, 1.
8.	Mālava Gauda ...	Sec. V, 1.
9.	Kalyāna ...	Sec. V, 4.
10.	Deshākshî ...	Chrom. A, I, 1.
11.	Nāda Rāmakrî ...	Chrom. A, I, 3b.
12.	Karnāta Gauda...	Chrom. A, II, 1.
13.	Kāmoda ...	Chrom. A, II, 6.
14.	Devakrî ...	Chrom. A, II, 7.
15.	Shuddha Nāta	Chrom. A, V, 1.
16	Sāranga ...	Chrom. A, V, 4.
17.	Mukhārî ...	Chrom. B, V, 5
18.	Shuddha Rāmakrî	Chrom. B, V, 6a.

B. SOMANĀTHA IN RĀGA VIBODHA.

(a). Vikrita notes of Somanātha : Somanātha wrote his book Rāga Vibodha in 1610 A.D. His scheme of notes was a mixture of Southern and Northern Systems. He used the names Sādhārana Ga, Antara Ga, Kaishika Ni and Kākalî Ni found in Rāmāmātya's scheme. The three "Chyuta" notes of Rāmāmātya were characterised by him as "Mridu", which resemble the word "Laghu" used by Pundarîka. He did not use the terms "Pancha-Shruti" or "Shat-Shruti". He laid down, instead, the rule that the notes Ri, Ga, Ma and Dha were to be characterised as Tîvra, Tîvratara and Tîvratama, when they became Chatuh-Shruti, Pancha-Shruti and Shat-Shruti respec-

tively[3]. These terms were evidently adapted from the Northern System. Unfortunately, Somanātha lost sight of the true import of the word "Tîvra". A note can be called Tîvra or sharp only in relation to the original or Shuddha note. But, Somanātha's Tîvra notes were related not to the corresponding Shuddha notes but to the preceding notes. A note was called Tîvra, Tîvratara or Tivratama, not because it was placed one, two or three Shrutis above the Shuddha note, but because it was placed four, five or six Shrutis above the preceding note. There would be no difference between Lochana and Somanātha in the position of notes in the case of Ri and Dha. For, Ri and Dha, being situated three Shrutis above Sa and Pa, four-Shruti, five-Shruti or six-Shruti Ri and Dha would be naturally placed one, two or three Shrutis above Shuddha Ri and Dha. But, in the cases of Ga, Ma and Ni the positions would be quite different. Thus, Tîvratara Ga or Ni of the Northern School would be called Tîvra Ga or Ni by Somanātha. The absurdity of Somanātha's rule will be clearly seen from its application to Madhyama. Thus, four-Shruti Ma might, according to him, be called Shuddha Ma as well as Tîvra Ma. The same note would also be called Tivratama Ga by Somanātha, though this extraordinary coincident note was called Atitîvaratma Ga by northern theorists. In spite of his aforesaid rule about Tîvra notes, Somanātha never applied it to Ni, and used the term "Tîvratama" only with regard to Ga and Ma. His Tîvratama Ma was useless, as it was practically indistinguishable from his Mridu Pa. He does not explain why he uses Tîvratama Ma in the two Melas Shuddha Varātî and Shuddha Rāmakrî, while he uses Mridu Pa in Kalyāna and Sāranga Melas.

Somanātha used altogether fifteen Vikrita notes. Of these eleven, viz., Sādhārana Ga, Antara Ga, Kaishika Ni, Kākalî Ni, Mridu Ma, Mridu Pa, Mridu Sa, Tîvratara Ri, Tîvratama Ri,

3 "किंतूक्त रिधगमानां व्यवहृतये पृथगिमा संज्ञाः ।
तीव्रश्चतुःश्रुतित्वे पंचश्रुतिकत्व एव तीव्रतरः ।
षट्श्रुतित्वे तीव्रतम इति परं ता यथायोग्यम् ॥"

Rāga Vibodha.

Tîvratara Dha and Tîvratama Dha were either identical with or equivalent to eleven notes of Rāmāmātya. The four additional notes used by Somanātha were Tîvra Ri, Tîvra Dha, Tîvratama Ga and Tîvratama Ma. The first two of thes e are identical with Eka-gati Ri and Dha of Vitthala and Chatuh-Shruti Ri and Dha of Pundarîka and were used only in Shrî-rāga Mela of Kallinātha like these two theorists. Tîvratama Ga of Somanātha corresponds to Atitîvratama Ga of Lochana and Chatur-gati Ga of Vitthala and was used only in Sāranga Mela like these two authors. Somanātha's Tîvratama Ma was, as shewn above, redundant like Antara Ga and Kākalî Ni.

(b). Twenty-three Melas of Somanātha examined: Somanātha mentions twenty-three Melas. But, as four of his Melas are indistinguishable from four others and one is inexplicable, we get only eighteen correct Melas. The Melas Kāmbodî, Bhairava, Vasanta and Sāmanta cannot be distinguished from Mallārî, Vasantā Bhairavî, Mālava Gauda and Shuddha Nāta respectively. Sāma-Varātî admits of no rational explanation. Three of his eighteen correct Melas are Primary, five Secondary and ten Chromatic. More than half of his Melas were, therefore, Chromatic.

It is a remarkable fact that Somanātha, like Rāmāmātya, treated Antara and Kākalî as notes different from Mridu Ma and Mridu Sa, which are called Chyuta Ma and Chyuta Sa respectively by Rāmāmātya. Six of Somanātha's Melas like five of Rāmāmatya's contain Antara and Kākalî. These include Revagupti, the anomalous Mela Sāma Varālî and the four Melas which we have excluded from Somanātha's list of Melas on the same principle of merger (leena) which Rāmāmātya applied to his five Melas containing Antara and Kākal î.

Of the three Primary Melas of Somanātha Mallārî has Shuddha Sa, Tîvratara Ri, Mridu Ma, Shuddha Ma, Shuddha Pa, Tîvratara Dha and Mridu Sa. The intervals are 5. 3. 1. 4. 5. 3. 1. These are the same as those of Sāranga Nāta of Rāmāmātya. Mallarî Mela of Somanātha is, therefore, the Primary Mode with all Shuddha notes of modern Hindusthānî

music, which is, as we have seen in the last preceding chapter, called Kedāra by Lochana. The Rāgas of this Mela of Somanātha include Sālanka Nāta, which is evidently the same as Sāranga Nāta of Rāmāmātya, Kedāra, Velāvalî and Shankarābharana, the last two being the modern names of this Mela in the Hindusthānî and Kārnātic systems respectively. Shrî Rāga Mela of Somanātha has for its Vikrita notes Tîvra Ri, Sādhārana Ga, Tîvra Dha and Kaishika Ni. The intervals are 4. 2. 3. 4. 4. 2. 3. It is noteworthy that this is the only Mela of Somanātha which contains four-Shruti Ri and Dha. This Mela is, therefore, identical with the Shrî-Rāga Mela of Kallinātha. There is no doubt that Somanātha took this Mela from that renowned commentator. The third Primary Mela of Somanātha is Todî. This is identical with the Mela of the same name found in the books of Vitthala and Pundarîka which is the No-Go-Do-Ro Mela. It is difficult to understand why Somanātha omits the No and the No-Go-Do Primary Melas, which were included in the lists of Melas of earlier writers and are widely used in modern music.

Somanātha's list of Secondary Melas is fuller than those of all previous writers, as it contains all the Secondary Melas of those writers. His Ābhîra Nāta is identical with Āharî of Rāmāmātya, Āherî or Ābhîrî of Vitthala and Ābhîrî of Pundarîka. Somanātha's Vasanta-Bhairavî is the same as that of Rāmāmātya. His Hammîra Mela is identical with Hamîra or Hamîra-Nata of Vitthala and Hamîra of Pundarîka. Mālava Gauda of Somanātha is identical with Mālava Gaula of Rāmāmātya, Gaudî of Vitthala and Mālava Gauda of Pundarîka. Somanātha includes in his list Kalyāna Mela, which was introduced by Pundarîka.

The ten Chromatic Melas of Somanātha include two of the four Melas of Lochana, and all of the seven Melas of Rāmāmātya. He does not mention any of the five Chromatic Melas introduced by Vitthala and Pundarîka. He gives the correct form of Shuddha Varātî, which is mentioned by Rāmāmātya and others as Shuddha Varālî, and may thus be said to have restored a lost Chromatic Mela.

Somanātha's Sāranga and Shuddha Rāmakrî Melas are identical with Sāranga and Dhanāshrî Melas respectively of Lochana. These Melas are found in the books of Vitthala and Pundarîka, but not in that of Rāmāmātya. The Melas Deshākshî, Nādarāmakrî, Karnāta Gauda, Shuddha-Nāta Rîti-Gauda, Revagupti and Mukhārî are identical with Melas of Rāmāmātya, having the same or slightly different names.

The notes of Somanātha's Shuddha-Varālî Mela are Shuddha Sa, Ri, Pa and Dha, Sādhārana Ga, Tîvratama Ma and Mridu Sa. Taking Tîvratama Ma as representative (pratinidhi) of Mridu Pa, we get the intervals : 3. 3. 6. 1. 3. 5. 1. Lowering the intertetrachordal and mid notes by one Shruti each, we get 2. 3. 6. 2. 2. 5. 2 or S. T. L. S. S. L S. If we extend the octave we get the combination L. S. S. T., which represents Pentachord No. 4 characteristic of Ascending Chromatic Scales. From the Mode Tables of these Scales we find that the Mela is identical with Mode No. 3b of Chromatic Fifth Scale, Group A, having Ga and Dha as Tonics. In order to represent the Mela correctly by means of Shrutis the intervals should be 2. 4. 6. 1. 2. 6. 1. In Just Notation it should be written thus :—

Shuddha-Varātî Mela of Somanātha in Just Notation :

Sa	Rŏ	*Go	Po	Pa	*Do	So	Sa[1]—Chrom. A, V, 3b.
5	9	14	3	5	14	3	

In Semitonic Notation the comma sign over Rŏ is to be omitted and Po and So are to be written as Mi and Na respectively. We have seen that Shuddha-Varālî Mela of Rāmāmātya is inexplicable. The only difference between it and Shuddha-Varātî Mela of Somanātha is that Ga of the latter, which is Shuddha, is higher than Ga of the former by one Shruti. There is no ground for doubting that the same Mela was aimed at by both the theorists. Rāmāmātya appears to have somehow misconceived the Mela and used Shuddha Ga in the place of Sādhārana Ga, which was the original correct

note. His mistake was continued by all subsequent theorists, except Somanātha. This Mela is very important and survives to the present day in the sublime Darbārî Todî of Northern India and Subha-Pantu-Varālî of Southern India[4].

(c). Eighteen correct Melas of Somanātha: The eighteen correct Melas of Somanātha with the Vikrita notes in Semitonic Notation of the Primary Melas and the Scales and the Modes of his other Melas are given below.

Melas of Somanātha.

1.	Mallārî	...	...	Shuddha notes
2.	Shrî-Rāga	...	...	No Go
3.	Todî	...	...	No Go Do Ro
4.	Ābhîra-Nāta	...	...	Sec. II. 1.
5.	Vasanta-Bhairavî	...	...	Sec. II, 5
6.	Hammîra	...	...	Sec. III, 1
7.	Mālava-Gauda	...	...	Sec. V, 1
8.	Kalyāna	...	...	Sec. V, 4
9.	Deshākshî	...	...	Chrom A, I, 1
10.	Nāda-Rāmakrî	...	...	Chrom. A, I. 3b
11.	Karnāta-Gauda	...	...	Chrom. A, II. 1
12.	Shuddha-Nāta	...	...	Chrom. A, V, 1
13.	Shuddha-Varātî	...	...	Chrom. A, V, 3b
14.	Sāranga	...	...	Chrom. A, V, 4
15.	Rîti-Gauda	...	...	Chrom. B, I, 2
16.	Revagupti	...	...	Chrom. B, III, 5
17.	Mukhārî	...	...	Chrom. B, V, 5
18.	Shuddha-Rāmakrî	...	...	Chrom. B, V, 6a

4. Venkateshwara, who came half a century after Somanātha, mentioned Shuddha-Varālî and in describing it persisted in the mistake of Rāmāmātya by giving it Shuddha Ga. He, however, mentions another Mela called Pantu-Varālî, which is identical with Somanātha's Shuddha-Varātî. The wrong Mela is included in the modern Melakartā scheme as Jhāla-Varālî (No. 39), and the correct Mela finds place in it as Subha-Pantu-Varālî (No. 45). This Mela which is considered by Venkateshwara to be unfit for higher art, is described by him as very much liked by Turks and the vulgar people. He thus described it :—

"गीतप्रबन्धायोग्योऽपि तुरूष्काणामतिप्रियः ।
रागः पंतुवराल्यारव्यः संपूर्णः पामरप्रियः ॥"

Chaturdandi Prakāshikā

C. VENKATESHWARA IN CHATURDANDI-PRAKĀSHIKĀ.

(a). Vikrita notes of Venkateshwara : Venkateshwara Dîkshit, popularly known as Venkata Makhi, one of the most famous writers on South Indian music, wrote Chaturdandi-Prakāshikā in the year 1660 A. D., *i.e.* to say, more than a century after Rāmāmātya wrote his book. The scheme of Shuddha and Vikrita notes adopted by this writer is practically the same as that of Rāmāmātya. The only difference between these two authors is that the notes named Chyuta Madhyama Ga, Chyuta Shadja Ni and Chyuta Panchama Ma by the latter are called Antara Ga, Kākalî Ni and Varāli Ma respectively by the former. Antara Ga and Kākalî Ni of Bharata and Shārngadeva are, as we have seen, notes two Shrutis lower than Ma and Sa. Venkateshwara, therefore, committed a gross mistake by applying these names to notes which are only one Shruti lower than Ma and Sa[5].

(b). Nineteen Melas of Venkateshwara examined : Venkateshwara, who is the famous author of the modern Melakartā Scheme of seventy-two Melas, gives elaborate descriptions of nineteen Melas, which, he states, were the only Melas used in South India in his time. Of these Shuddha-Varālî and Sāma-Varālî, which are also mentioned by Rāmāmātya, are incapable of rational explanation, as we have stated in the last preceding chapter. Of his seventeen correct Melas, six are Primary, four Secondary and seven Chromatic.

The Primary Mela of Venkata named Sankarābharana is identical with Sāranga-Nāta Mela of Rāmāmātya. It is, therefore, equivalent to the Shuddha Scale of modern Hindusthānî music. Kāmbhoji Mela has for its Vikrita notes five-Shruti Ri, Antara Ga, five-Shruti Dha and Kaishika Ni. The Shruti intervals are 5. 3. 1. 4. 5. 1. 3. Lowering the

5. Rāmāmātya did not commit this mistake. For, though he mentioned Antara and Kkali as *pratinidhis* (substitutes) of Chyuta Madhyama Ga and Chyuta Shadja Ni, he clearly stated that they were notes lower than Ma and Sa by two Shrutis.

inter-tetrachordal notes by one Shruti we get : 4. 3. 2. 4. 4. 1. 4 or T. T. S. T. T. S. T. If the octave is extended the Mela would be found to contain the Pentachord No. 1, T. T. T. S, characteristic of Primary Scales. The intervals of the Mela are those of the Pa-Modes of the similar forms of these Scales and must. therefore, be identified with No Mela in Semitonic Notation, which is called Khāmbāja Mela in modern Hindusthānî music. It is, however, quite different from Kāmbhojî Mela of Rāmāmātya and Kāmbodî Mela of Somanātha, which are equivalent to the modern Hindusthānî Shuddha Scale. Shrî-rāga Mela of Venkata is identical with the Mela of the same name mentioned by Rāmāmātya and equivalent to modern No-Go Mela. It is to be noticed that neither he nor Rāmāmātya uses four-shruti Ri and Dha, characteristic of Kallinātha's Shrî-rāga, like Vitthala, Pundarîka and Somanātha. Bhairavî Mela of Venkata is identical with Hindola Mela of Rāmāmātya, which is equivalent to modern No-Go-Do Mela. Bhupāla Mela of Venkata is identical with Todî Mela of Vitthala, Pundarîka and Somanātha, which is equivalent to modern No-Go-Do-Ro Mela. Kalyānî Mela has for its Vikrita notes five-shruti Ri, Antara Ga, Varālî Ma, five-Shruti Dha and Kākalî Ni. The intervals are 5. 3. 4. 1. 5. 3. 1. Lowering the inter-tetrachordal notes and the mid note by one Shruti we get the intervals 4. 3. 4. 2. 4. 3. 2 or T. T. T. S. T. T. S. The Mela is a Mode of a Primary Scale, as it contains the Pentachord T. T. T. S characteristic of these Scales. It is the Ma-Mode of Similar Primary Scales, which is modern Mi Mela. This Mela is not found in any old book on Southern music and is, therefore, Venkateshwara's addition to the number of Primary Melas of Southern India. Rāmāmātya mentioned only three Primary Melas ; viz., Shuddha, No-Go and No-Go-Do. Vitthala added No Mela and Somanātha No-Go-Do-Ro Mela. The introduction of Mi Mela by Venkata completed the list of Primary Melas in Southern India. It, thus, appears that the only Melas which are based on the ancient system were slowly introduced into the Kārnātic system between 1550 A.D and

1660 A.D. Whereas, all of them are found in the earliest medieval work on the Northern System, written by Lochana.

Of the four Secondary Melas of Venkata, Āharî and Vasanta-Bhairavî are identical with the Melas of the same names mentioned by Rāmāmātya and Gaula is identical with Mālava-Gaula of the latter. The Vikrita notes of Venkateshwara's Simharāva Mela were five-Shruti Ri, Sādhārana Ga, Varālî Ma, five-Shruti Dha and Kaishika Ni. The intervals are 5. 1. 6. 1. 5. 1. 3. Lowering the inter-tetrachordal and mid notes by one Shruti we get : 4. 1. 6. 2. 4. 1. 4 or T. S. L. S. T. S. T. Pentachord No. 3, T. S. L. S, characteristic of Second, Third and Fifth Secondary Scales, occurs in this Mela. The Mode Tables of these Scales will show that it is the Fourth Mode of Secondary Second Scale, having Ra and Pa as its Tonics. To express the Mela correctly by means of Shrutis, the intervals should be 4. 2. 5. 2. 4. 2. 3. In Just Notation the Mela should be written as follow :—

Simharāva Mela of Venkateshwara in Just Notation :

Sa	*Ra	Go	Mî	*Pa	Dâ	No	Sa[1]—Sec. II, 4
9	5	12	5	9	5	8	

This Mela is not to be found in any other book of either school of music. The author claims this Mela in one place as a creation of his own, and in another place states that the Mela was raised (*unnita*) by him, *i.e.* to say, collected by him from folk music and introduced into the orthodox system.

Of the seven Chromatic Melas of Venkateshwara, Deshākshî is identical with the Mela of the same name of Rāmāmātya and other writers ; Sāmanta is identical with Karnāta Mela of Rāgamanjarî by Vitthala and equivalent to Megha Mela of Lochana ; Nāta is identical with Shuddha-Nātî Mela of Rāmāmātya ; Pantu-Varālî is identical with Shuddha-Varātî of Somanātha ; Shuddha-Rāmakriyā is identical with Shuddha-Rāmakrî Mela of Rāmāmātya and other authors ; and Mukhārî is the Shuddha Scale as in the case of all South Indian writers. Venkata's Hejujjî is quite different from Hejujjî

Mela of Rāmāmātya, which is, as we have seen, equivalent to (merged in) his Gaula Mela. It is practically equivalent to Revagupti Mela of Rāmāmātya and Somanātha.

(c). Seventeen correct Melas of Venkateshwara : The seventeen correct Melas of Venkateshwara with the Vikrita notes in Semitonic Notation of his Primary Melas, and the Scales and the Modes of his Secondary and Chromatic Melas are given below.

Melas of Venkateshwara.

1.	Shankarābharana	...	Shuddha
2.	Kāmbhojî	...	No
3.	Shrî-Rāga	...	No Go
4.	Bhairavî	...	No Go Do
5.	Bhupāla	...	No Go Do Ro
6.	Kalyānî	...	Mi
7.	Āharî	...	Sec. II, 1
8.	Simharāva	...	Sec. II, 4
9.	Vasanta-Bhairavî	...	Sec. II, 5
10.	Gaula	...	Sec. V, 1
11.	Deshākshî	...	Chrom. A, I, 1
12.	Sāmanta	...	Chrom. A, II, 4
13.	Nāta	...	Chrom. A, V, 1
14.	Pantu-Varālî	...	Chrom. A, V, 3b.
15.	Hejujjî	...	Chrom. B, III, 5
16.	Mukhārî	...	Chrom. B, V, 5
17.	Shuddha-Rāmamaiyā	...	Chrom. B, V, 6a.

D. TULAJENDRA IN SANGÎTA SĀRĀMRITA.

(a). Vikrita notes of Tulajendra : The latest author in the line of notable theorists of Southern India was Tulāji Rao Bhonsle, Raja of Tanjore and a descendant of the illustrious Maharaja Shivaji[6]. He calls himself Tulajendra in his book Sangîta Sārāmrita, which he wrote about the first quarter of the 18th century A.D. He mentions Svaramela Kalānidhi, Chaturdandi-Prakāshikā and "Vitthalia", meaning evidently the books of Vitthala. He refers to Venkateshwara's scheme of seventy-two Melas, speaks about Varālî-Madhyama, the sharp Fourth of that author, and follows him in almost every detail

6. Vide "Sangîta Sārāmritatoddhāra" edited by Bhala Chandra Sarma in 1911, p. 8.

of his system. In his description of the Melas, however, he calls the sharp Fourth Vikrita-Panchama Madhyama, which, being only a different name for Varālî Madhyama of Venkateshwara, is a note one Shruti lower than Panchama. Like that author he calls Shuddha Ga and Ni of modern Hindusthānî music by the names Antara Ga and Kākalî Ni. Tulajenda does not give the positions of the notes in terms of Shrutis. But, as he strictly follows Venkateshwara in almost all matters, we must take his Antara and Kākalî not as the ancient notes of these names, but as notes one Shruti lower than Ma and Sa respectively.

(b). Twenty-one Melas of Tulajendra examined : This author mentions in his book the names of twenty-one Melas. These include the two inexplicable Melas found in the books of Rāmāmātya and Venkateshwara. One of them is Sāma-Varālî and the other is Varālî, which is called Shuddha-Varālî by those two authors. The two Melas Todî and Kalyānî, he leaves unexplained. Of the remaining seventeen Melas, four are Primary, four Secondary and nine Chromatic. The four Primary Melas Shankarābharana, Kāmbhoji, Shrî-Rāga and Bhairavî are identical with Melas of Venkata having the same names. Todî Mela as described by all medieval and modern South Indian writers is Primary NoGoDoRo-Mela. That Mela of Tulajendra may, therefore, be taken to represent the same Mela. Kalyānî Mela as described by Venkata and as used in modern South Indian music is Primary Mi-Mela. That Mela of Tulajendra may, therefore, be considered as equivalent to the latter. Velāvalî is a Secondary Mela of Tulajendra, which is not mentioned by any other theorist. Its Vikrita notes are five-shruti Ri and Dha, Sādhārana Ga and Kākalî Ni. The intervals are : 5. 1. 3. 4. 5. 3. 1. Lowering the inter-tetrachordal notes by one Shruti we get 4. 1. 4. 4. 4. 3. 2, i. e. T. S. T. T. T. T. S. The Mela contains Pentachord No. 2 : T. T. T. T., which is characteristic of Secondary First and Fourth Scales. As these Scales are similar, the Mela is capable of two different interpretations. It may be either the First Mode of Secondary First Scale with Sa and Pa as Tonics or the Fourth Mode of

Secondary Fourth Scale with Ri and Pa as Tonics. In the first case the correct Shruti-intervals should be 4. 2. 3. 4. 3. 4. 2 ; and in the second case the intervals should be 4. 2. 4. 3. 4. 3. 2. In Just Notation the Mela should be written as follows :—

Velâvalî Mela of Tulajendra in Just Notation :

*Sa Ra Go Ma *Pa Da Na Sa¹ — Sec. I, 1
9 5 8 9 8 9 5

Or

Sa *Ra Go Mâ *Pa Dâ Na Sa¹ — Sec. IV, 4
9 5 9 8 9 8 5

In Semitonic Notation both the Melas will appear alike, the comma being omitted. This Mela is not to be found in any other book. In modern Hindsthānî music Rāga Baroān is sung in this Mela.

Vasanta-Bhairavî Mela is the same as that of Rāmāmātya and Venkateshwara. Vegabāhinî is another addition to the number of South Indian Secondary Melas. Its Vikrita notes are Antara Ga, five-Shruti Dha and Kaishikîa Ni. The intervals are 3. 5. 1. 4. 5. 1. 3. Lowering the inter-tetrachordal notes by one Shruti we get 2. 5. 2. 4. 4. 1. 4. or S. L. S. T. T. S. T. By extending the octave we get the combination T. S. L. S., which is Pentachord No. 3 characteristic of Secondary Second, Third and Fifth Scales. On examining the Mode Tables of these Scales, we find that the Mela represents the Fifth Mode of Secondary Third Scale having Sa and Ma for its Tonics. In Shrutis it should be expressed by the intervals 2. 5. 2. 4. 3. 2. 4. In Just Notation it should be written thus :—

Vegabāhinî Mela of Tulajendra in Just Notation :

*Sa Rŏ Ga *Ma Pa Da Nŏ Sa¹—Sec. III, 5.
5 12 5 9 8 5 9

Mālava-Gaula is the same as that of Rāmāmātya and Gaula of Venkata. Deshaākshî is identical with that of Rāmāmātya, Venkata and others. Bhinna-Shadja is identical with Nāda-

Rāmakriyā of Rāmāmātya. Chhāya-Nāta is identical with Kannada-Gaula Mela of Rāmāmātya. Shuddha-Nātî is the same as that of Rāmāmātya. Sindhu-Rāmakriyā is identical with Pantu-Varālî Mela of Venkateshwara. Hejujjî is the same as Hejujja of the latter, and Shuddha-Rāmakriyā the same as that of Rāmāmātya, Venkata and others. Sāranga Mela of Tulajendra is of peculiar interest, because the author who follows in the footsteps of Venkateshwara in almost every detail, departs from that author by introducing a new note for the purpose of explaining this Mela, which is not to be found in Venkata's book and is incapable of expression by means of notes used by him. The Vikrita notes of this Mela are five-Shruti Ri, Shuddha-Madhyama Ga, the note which is called *Uchcha* (high, i.e. Tîvra or sharp) Madhyama in popular parlance and Vikrita-Panchama Madhyama in authoritative books, six-Shruti Dha and Kākalî Ni[7]. About Shuddha Madhyama Ga he states :

"शुद्धस्य मध्यमस्यात्र गांधारत्वेन कीर्तनात्।
शुद्धमध्यमगांधार संज्ञास्यैव मया कृता ॥"

"Shuddha-Madhya is here given by me the name Shuddha-Madhyama Gāndhāra, because it is treated as Gāndhāra" :

This note, which is the third degree of the Mela, is thus coincident with Ma. It is called Atitîvratama Ga by Lochana and Hridaya Nārāyana, Turîya Gati Ga by Vitthala and Tîvratama Ga by Somanātha, and is practically the same note as five-Shruti Ma of Pundarîka. This coincident note is, as we have seen above, especially intended for Sāranga Mela of the aforesaid authors, and Devakrî Mela of Pundarîka. The

'शुद्धौ सपौ च ऋषभः पंचश्रुतिक-संज्ञकः।
शुद्धमध्यमगांधार स्ततः स्यादुच्चमध्यमः ॥
लौकिकोऽसौ शास्त्रतो विकृत-पंचम-मध्यमः।
षट-श्रुति-धैवत श्च स्यात् काकल्याख्य-निषादकः।
एतैः सप्त स्वरैर्युक्तः सारंगस्य हि मेलकः ॥'

Sangîta Sārāmrita.

Shruti-intervals of Sāranga Mela of Tulajendra are 5. 4. 3. 1. 6. 2. 1. These are identical with the intervals of Sāranga Mela of Vitthala and Somanātha, which has been shown to be the Fourth Mode of Chromatic Fifth Scale, Group A.

(c). Nineteen correct Melas of Tulajendra : The nineteen correct Melas of Tulajendra with the signatures of his Primary Melas and the Scales and the Modes of his Secondary and Chromatic Melas are given below.

Melas of Tulajendra :

1.	Shankarābharana	...	Shuddha notes
2.	Kāmbhojî	...	No
3.	Shrî-Rāga	...	No Go
4.	Bhairavî	...	No Go Do
5.	Todî	...	No Go Do Ro
6.	Kalyānî	...	Mi
7.	Velāvalî	...	Sec I, 1 or Sec. IV, 4
8.	Vasanta-Bhairavî	...	Sec. II, 5
9.	Vegabāhinî	...	Sec. III, 5
10.	Mālava-Gaula	...	Sec. V, 1
11.	Deshākshî	...	Chrom. A, I, 1
12.	Bhinna-Shadja	...	Chrom. A, I, 3b.
13.	Chhāyā-Nāta	...	Chrom. A, II, 1.
14.	Shuddha-Nātî	...	Chrom. A, V. 1
15.	Sindhu-Rāmakriyā	...	Chrom. A. V, 3b.
16.	Sāranga	...	Chrom. A, V, 4.
17.	Hejujjî	...	Chrom. B, IV, 5
18.	Mukhārî	...	Chrom. B, V, 5
19.	Shuddha-Rāmakriyā	...	Chrom. B, V, 6a

E. MEDIEVAL MELAS OF SOUTH INDIA

Tulajendra is the last of writers who made any material contribution to the theory of South Indian music. The Melas of six South Indian theorists, who appeared at different successive periods between the middle of the sixteenth to the middle of the eighteenth century A.D., have been dealt with above. Rāmāmātya was the pioneer in the field of South Indian musical theory. All subsequent writers practically followed in his footsteps by adopting his Scale of Origin as the basis of their schemes, though these differed widely from each other. These authors have dealt with altogether thirty correct Melas, though none of them has mentioned individually more than twenty,

which was the maximum number of Melas used at any particular period. Even Venkateshwara, who is the reputed originator of the Melakartā Scheme of seventy-two Melas, states explicitly that only nineteen Melas were in actual use in his time. It has been shown that the South Indian Scale of Origin is a Chromatic Scale, and that by far the largest number of Melas dealt with by the aforesaid authors are also Chromatic in character. The six Primary Melas are common to both the Schools, Northern and Southern. The number of medieval Secondary Melas was eight and that of Chromatic Melas sixteen. The medieval names of these Melas, the names of the earliest authors mentioning them, together with their Signatures and Serial Numbers, and the Scales and the Modes they represent are given below.

(a). Eight Medieval Secondary Melas of Southern India :

Medieval Name	Signature and Serial Number	Scale and Mode represented
1. Velāvalî (Tulajendra)	Go (8)	Sec. I, I or Sec. IV, 4
2. Āharî (Rāmāmātya) ...	Go Do (15)	Sec. II, 1
3. Simharāva (Venkateshwara) ...	Go Mi No (18)	Sec. II, 4
4. Vasanta-Bhairavî (Rāmāmātya) ...	Ro Do No (19)	Sec. II, 5
5. Hāmîra (Vitthala) ...	Do (22)	Sec. III, 1
6. Vegabāhinî (Tulajendra)	Ro No (26)	Sec. III, 5
7. Mālava-Gaula (Rāmāmātya) ...	Ro Do (29)	Sec. V, 1
8. Kalyāna (Pundarîka)	Go Mi Do (32)	Sec. V, 4

(b). Sixteen Medieval Chromatic Melas of Southern India :

1. Deshākshî (Rāmāmātya) ...	Ri (36)	Chrom. A,I,1
2. Nāda-Rāmakriyā (Rāmāmātya)	Ro Go Do (38)	„ A,1,3b
3. Kannada-Gaula (Rāmāmātya)···	Ri No (43)	„ A,II,1
4. Karnāta (Vitthala) ...	Di (46)	„ A,II,4

Medieval Name	Signature and Serial Number	Scale and Mode represented
5. Kamoda (Vitthala)	Ro Go Mi Do No (48)	Chrom. A,II,6
6. Devakriyā (Pundarîka)	GiMi (49)	„ A, II,7
7. Deshākshî (Vitthala)	Ri Do No (50)	„ A,III,1
8. Shuddha-Nātî (Rāmāmātya)	Ridi (64)	„ A,V,I
9. Shuddha-Varātî (Somanātha)	RoGoMiDo(66)	„ A,V,3b
10. Sāranga (Vitthala)	Gi Mi Di (67)	„ A,V,4
11. Rîti-Gaula (Rāmāmātya)	Ro Goo No (72)	„ B,I,2
12. Soma Rāga (Vitthala)	Ro GooDo No (79)	„ B,II,2
13. Kalyāna (Vitthala)	Mi Do (90)	„ B,III,6
14. Revagupti (Rāmāmātya)	Ro Do Noo (96)	„ B,IV,5
15. Mukhārî (Rāmāmātya)	Ro Goo Do Noo (103)	„ B,V,5
16. Shuddha-Rāmakriyā (Rāmāmātya)	RoMiDo (104)	„ B.V.6a

F. MELA-PRASTĀRA SCHEME OF VENKATESHWARA.

(a). The scheme explained : Before dealing with modern Melas of Southern India, we have to explain the Mela-Prastāra Scheme devised by Venkateshwara, the most reputed theorist of the Southern School. This scheme, which is now called Melakartā, is considered to be the basis of modern South Indian music. It consists of seventy-two Melas created by an well-ordered combination of the twelve ordinary and the four extraordinary notes originally devised by Rāmāmātya and subsequently adopted by all south Indian theorists. The seventy-two Melas are divided into two classes, each containing thirty-six Melas. These classes are distinguished from each other by the two forms of Madhyama. The Melas of the class containing Shuddha-Madhyama are called Purva Melas and those of the class containing Varālî-Madhyama (sharp Fourth) are called Uttara Melas. Each Mela of one class has a corresponding Mela in the other class having the

same notes, except the distinctive Madhyama. Sa and Pa, the two unalterable notes are common to all the Melas. The Melas included in each class are, thus distinguished from each other by means of the remaining four inter-tetrachordal notes Ri, Ga, Dha and Ni. Each of these four notes has, as we have seen, three forms. For the sake of convenience, Venkateshwara expressed this distinction by means of the vowels a, i and u affixed to the constant letters representing these notes in the order in which the three forms of each note are placed in the Scale. Thus, the three forms or positions of Ri are expressed by the syllables Ra, Ri and Ru. The three other notes are also expressed similarly. If the three notes Ra, Ri and Ru of the lower tetrachord are combined with the three notes Ga, Gi and Gu of the same tetrachord in all possible ways, we get nine couples of notes. Of these the couples Ri Ga, Ru Gi and Ru Ga are useless, as the first two contain coincident notes and the third is a different and unnatural form of Ri Gi. Similarly, the three notes Dha, Dhi and Dhu of the upper tetrachord give nine couples of which Dhi Na, Dhu Ni and Dhu Na are useless. We thus get the following six couples of notes in each tetrachord.

Lower Tetrachord			*Upper Tetrachord*		
1.	Ra	Ga	1.	Dha	Na
2.	Ra	Gi	2.	Dha	Ni
3.	Ra	Gu	3.	Dha	Nu
4.	Ri	Gi	4.	Dhi	Ni
5.	Ri	Gu	5.	Dhi	Nu
6.	Ru	Gu	6.	Dhu	Nu

Each couple of notes of the lower tetrachord is then taken up one by one in the order shown above and combined with each couple of the upper tetrachord in the above order, thus forming six groups of six combinations and making a total of thirty-six. These constitute the basis of the two classes of Melas mentioned above. The Purva Melas containing Shuddha-Madhyama, which is called Ma, are numbered 1 to 36, and the Uttara Melas containing Varālī-Madhyama, which is called Mi, are numbered 37 to 72. The whole scheme is shown below.

MELA-PRASTĀRA.

Serial Number of Purva Mela with Ma							*Serial Number of Uttara Mela with Mi*
1.	Ra	Ga	Dha	Na			37
2.	Ra	Ga	Dha	Ni			38
3.	Ra	Ga	Dha	Nu			39
4.	Ra	Ga	Dhi	Ni			40
5.	Ra	Ga	Dhi	Nu			41
6.	Ra	Ga	Dhu	Nu			42
7.	Ra	Gi	Dha	Na			43
8.	Ra	Gi	Dha	Ni			44
9.	Ra	Gi	Dha	Nu			45
10.	Ra	Gi	Dhi	Ni			46
11.	Ra	Gi	Dhi	Nu			47
12.	Ra	Gi	Dhu	Nu			48
13.	Ra	Gu	Dha	Na			49
14.	Ra	Gu	Dha	Ni			50
15.	Ra	Gu	Dha	Nu			51
16.	Ra	Gu	Dhi	Ni			52
17.	Ra	Gu	Dhi	Nu			53
18.	Ra	Gu	Dhu	Nu			54
19.	Ri	Gi	Dha	Na			55
20.	Ri	Gi	Dha	Ni			56
21.	Ri	Gi	Dha	Nu			57
22.	Ri	Gi	Dhi	Ni			58
23.	Ri	Gi	Dhi	Nu			59
24.	Ri	Gi	Dhu	Nu			60
25.	Ri	Gu	Dha	Na			61
26.	Ri	Gu	Dha	Ni			62
27.	Ri	Gu	Dha	Nu			63
28.	Ri	Gu	Dhi	Ni			64
29.	Ri	Gu	Dhi	Nu			65
30.	Ri	Gu	Dhu	Nu			66
31.	Ru	Gu	Dha	Na			67
32.	Ru	Gu	Dha	Ni			68
33.	Ru	Gu	Dha	Nu			69
34.	Ru	Gu	Dhi	Ni			70
35.	Ru	Gu	Dhi	Nu			71
36.	Ru	Gu	Dhu	Nu			72

The two unalterable notes Sa and Pa must be added to each of the above combinations in order to have a complete Mela.

(b). The scheme incomplete and defective : The above scheme may be considered very ingenious so far as the symmetrical arrangement of its notes is concerned. But, a scheme to be really useful must be complete in itself and must not include any Mela which is practically useless. The Mela-Prastāra is based exclusively on the Scale of Origin and the sixteen notes introduced into South Indian music by Rāmāmātya. It is found that most theorists both of the Northern and the Southern Schools, who came after Rāmāmātya mention a Mela named Sāranga. This Mela cannot be expressed by means of only the notes devised by Rāmāmātya. In order to express it an extraordinary note coincident with Ma is required, as we have seen. This Mela was mentioned not only by theorists preceding Venkateshwara but also by Tulajendra who came after him. It is, therefore, impossible to believe that the Mela had become obsolete in his time. He must have been ignorant of it and so did not make any provision for including in his scheme this Mela, which was for long widely used all over India. There was another Mela named Devakriyā mentioned by Pundarîka which is not included in this scheme. In modern Hindusthānî music two Rāgas called Paschātya Lalita and Prāchya Vasanta are sung in Melas which are not included in the Mela-Prastāra. These are some proofs of insufficiency of the scheme from musical facts. Turning to the scientific aspect of music, it is found from the Mode Tables that there are numerous Modes in them which cannot be represented by any of the Melas included in the scheme. In spite of its incompleteness the scheme would have been useful for limited purposes, if all of its Melas could represent correct Modes. But, it has been found on examination that twenty-seven, i.e. to say, three-eighths of the total number of the Melas cannot be made to represent correctly any Mode of any Scale. A scheme with such a large proportion of incorrect Melas is an

unreliable guide for a musical adventurer devoid of true musical instinct.[8]

(c). Plea for the scheme : Venkateshwara tells us that only nineteen Melas were in actual use in his time. He naturally suspects that some people might doubt the utility of a scheme of Melas most of which are not in practical use and tries to remove that doubt by showing its usefullness. For this purpose he divides Rāgas into three classes, viz. (1) *Kalpita*, i.e. those which have been already created by musical experts, (2) *Kalpyamāna*, *i.e.* those which are in process of creation, and (3) *Kalpishyamāna*, *i.e.* those which may be created in future by such experts. He admits that some Rāgas already created are unknown to him and are to be found only in older treatises on musical theory. By referring to these obsolete Rāgas, he probably means that these can be revived with the help of his scheme. He then goes on to say that there is an infinite number of Rāgas to be found in the popular music of different countries which ought to be raised to artistic dignity by intelligent musical experts (*buddhimadbhih samunneyāh*). He evidently thinks that these Deshî Rāgas can be raised (*unnîta*) with the help of his scheme. He claims to have himself raised the Rāga Simharāva. He also mentions two Rāgas called Kalyānî and Pantu-Varālî, which had been raised from Deshî music before his time, but had not yet attained such perfection as would make them fit for the higher forms of art : *gîta*, *thāya* and *prabandha*. He appears to have been quite aware of the fact that the store-house of popular Deshî music was the main source of Rāgas used in artistic music. This will be seen from the concluding passage of the chapter on Rāgas, which runs as follows :—

> "एवम्प्रकारेणोन्नेया रागा देश समुद्भवाः ।"
> "Rāgas which have their origin in countries are to be raised in this way."

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8. The most notable instance of such an adventurer is to be found in the author of the book called Rāga Lakshana, who has created Rāgas for every Mela of the scheme.

The objects Venkateshwara had in view in formulating his scheme were, no doubt, laudable. But, being innocent of science he could not realise that such a scheme to be really useful must be planned on strictly scientific principles and that the notes of every Mela contained in it must be related to definitely ascertainable centres (Amsas).

(d). Names of the Melas : Forty-five out of seventy-two Melas of Venkateshwara can, however, be made to represent Modes of scientifically constructed Scales. He named only nineteen Melas, said to be in use in his time, after Rāgas which were based on them. He called the other Melas by their serial numbers in the Mela-prastāra. In modern South Indian music all his Melas are provided with distinctive names[9]. The modern names of his correct forty-five Melas and the Scales and the Modes they can be made to represent will be found in the following section.

The serial numbers of his twenty-seven Melas, which do not admit of any rational explanation are 3, 5, 6, 11, 12, 18, 31, 37 to 43, 46 to 50, 52, 54, 55, 61, 62, 67, 68 and 70.

G. MODERN SYSTEM OF SOUTHERN INDIA.

(a). Notes of the modern system : The Scale of Origin of modern South Indian music is practically the same as that of the medieval theorists. The modern names of notes are the same as those used by Venkateshwara, except the three names Pancha-Shruti Ri and Dha and Varālī-Ma, which are now called Chatuh-shruti Ri and Dha and Prati-Ma. It has been shown in the last preceding chapter that the irrational Shruti arrangement of the Scale of Origin and the Vikrita notes of South India is not rectified by lowering merely Pancha-shruti Ri and Dha by one shruti, and that for that purpose all the intertetrachordal notes and the mid-note must be lowered by one Shruti each. This would make the Shruti intervals

9. A different set of names is found in some books and believed to have been coined by the originator of the scheme. But, there is no ground for such belief, as no trace of these names is to be found in the chapter on Rāgas of his book.

between the seven Shuddha notes : 2. 2. 5. 4. 2. 2. 5 and those between the twelve notes 2. 2. 1. 2. 2. 2. 2. 2. 2. 1. 2. 2. Shuddha Ri and Dha would then be two Shrutis (i. e. a real Semitone) above Sa and Pa. and Shuddha Ga and Ni would be four Shrutis (i.e. a real Tone) above those notes. Pancha-shruti Ri and Dha would thus become Chatuh-shruti Ri and Dha and Shat-shruti Ri and Dha would become Pancha-shruti Ri and Dha. Antara Ga and Kākalî Ni would take their proper places according to ancient tradition. The notes of the Southern System would thus be made perfectly consistent with those of the Northern System. The corresponding notes of the two Systems are shewn below.

	Southern System			Northern System
1.	Sa	...	...	Sa
2.	Shuddha Ri	...	...	Komala Ri
3	Chatuh-Shruti Ri		...	Shuddha Ri
	Shuddha Ga	...	...	Dvi-Komala Ga
4.	Pancha-Shruti Ri		...	Tîvra Ri
	Sādhārana Ga	...	...	Komala Ga
5.	Antara Ga	...	...	Shuddha Ga
6.	Shuddha Ma	...	...	Shuddha Ma
7.	Prati Ma	...	...	Tîvra Ma
8.	Pa	...	...	Pa
9.	Shuddha Dha	...	...	Komala Dha
10.	Chatuh-Shruti Dha		...	Shuddha Dha
	Shuddha Ni	...	...	Dvi-Komala Ni
11.	Pancha-Shruti Dha		...	Tîvra Dha
	Kaishika Ni	...	...	Komala Ni
12.	Kākalî Ni	...	...	Shuddha Ni

All the Semitones except that between the third and the fourth notes and that between the tenth and the eleventh notes are represented by two Shrutis. We have seen that Melas are formed by combination of notes of a Scale divided into twelve equal Semitones, though they are nominally based on the ancient Shruti Scale. The above mentioned two Semitones represented by one Shruti may, therefore, be enlarged by one Shruti each, thus making the whole Scale consist of twenty-four Shrutis instead of twenty-two. Pancha-Shruti Ri and Dha could, then, be called Shat-Shruti Ri and Dha, as they are called in modern South Indian music.

It is a rather strange fact that, though the modern South Indian Scale of origin is identical with that of medieval theorists, it is no longer called Mukhārî, the name used by all of them. It is now called Kanakāngî. This points to the fact that the foremost medieval Rāga has become obsolete. Indeed we find that a Rāga named Mukhārî is now sung in No-Go-Mela. The foremost Rāga of Chromatic Mela has thus been converted into a Rāga of Primary Mela. This is an ominous indication of decay of Chromatic Melas in South India, the original seat of Dravidian culture, which gave rise to these unique Melas.

(b). **Utility of the Melakartā Scheme doubted:** It is the general belief that the South Indian musical system is firmly based on the rocky foundation of the Melakartā scheme. Can the modern system be said to be more dependent on that scheme than the system of the time of its originator was? There is nothing to show that the musical system he himself deals with has anything to do with that scheme. He admits that he formulates his scheme only in the hope that it might be utilized by uture musical creators. How far that hope has been fulfilled has yet to be investigated. Tulajendra, who came into the field of music more than half a century after Venkateshwara and was fully aware of his scheme, does not appear to have been in any way benefited by that scheme. Although he mentions two new Secondary Melas not known to Venkateshwara he does not make any reference to the serial numbers of the corresponding Melas of the Mela-Prastāra. This shows that he was not indebted to that scheme for his two new Melas. That he was concerned only with the actual condition of music of his own time and place and not with Venkateshwara's scheme or even with the Melas actually used in his time and place, is clearly shown by the facts that he gives a different name to Pantu-Varālî, that he makes no mention of Sāmanta and Simharāva, and that he mentions two Melas Bhinna-Shadja and Sāranga not known to Venkateshwara but found in books of older theorists. It is, therefore, hard to believe that later creators of music were benefited by Venkateshwara's scheme.

After all, a modern musician of South India is concerned solely with the Melas which are actually used in his own time. Books like Rāga Lakshana which provide Rāgas for all Melas, correct and incorrect, make it extremely difficult to have any definite knowledge about them. Eminent South Indians appear to have been already conscious of the difficulty of ascertaining the actual condition of South Indian music and to have been doubtful about the utility of the Melakartā Scheme. The following passage from the foreword by T. R. Venkatarāma Sāstri, C.I.E., B,A., B L, ex-Advocate General of Madras, in Rāmaswami Aiyar's edition of Svaramela Kalānnidhi will be found illuminating :

> "Rāmāmātya, the author of the book here published, recognised twenty Melas, his successors went on increasing the number and the present day theory recognises seventy-two, though it is doubtful whether all of them are in actual use or can satisfy the ear of the people. It is a result of pure mathematics—a question of how many combinations of the seven notes and their variations can be made."

The following remarks of the editor himself in the introduction are also very significant :

> "Why then should any one demur if, today, we proceed, on the same time-honoured Principle of *Lakshya*, to break loose from Venkata Makhi's *Melakartha* system and advocate, on the plea of merger the elimination therefrom of his four (unnecessary) swaras, viz., Shat-shruti Ri, Shuddha Ga. Shat- shruti Dha and Shuddha Ni ? Hence it was that I suggested the formation of a new working scheme, called *Laghu-mela kartha* as distinguished from the *Brihan-mela kartha* of Venkatamakhi".

The editor M. S. Ramaswami Aiyar, B. A., B. L., L. T., who was Extension Lecturer of Music in Mysore, Madras and Annamalai Universities, here advocates abandonment of Venkateshwara's Malakartā scheme and substitution in its place of a new scheme which he calls *Laghu-Melakartha.*

He leaves us in no doubt about his views in the matter, when he characterises the four peculiar notes of the Southern system as *unnecessary*, and advocates their *elimination*. We have seen that these four extraordinary notes were especially devised by Rāmāmātya in order to express the Chromatic Melas of his time.

Forty Melas of the sheme are based on one or more of these four extraordinary notes, the remaining thirty-two Melas, based on only the twelve ordinary notes, being included in the Laghu-melakartha advocated by the editor. These forty Melas include most of the sixteen Chromatic Melas which were in use in different times of the medieval period. Some of them were used by Venkateshwara as well as Tulajendra. It would follow from the above remarks of the editor that all these Chromatic Melas have disappeared from modern South Indian music. This no doubt is an extreme view, which is not shared by all connoisseurs of South Indian music.

(c). **Melas in modern books:** P. Sambamoorthy, B. A., B. L., Lecturer in Indian Music, Qeen Mary's College, Madras, gives in his book named "The Melakarta Janya-rāga-Scheme" a list of two hundred and twenty-six Rāgas said to be used in modern South Indian music, which are based on forty-three Melas of the Melakartā scheme. Of these six are Primary, nine Secondary and sixteen Chromatic Melas. The remaining twelve are inexplicable wrong Melas. The Melakartā serial numbers of the six Primary Melas are 8, 20, 22, 28, 29 and 65; those of the nine Secondary Melas are 14, 15, 16, 21, 26, 27, 57, 59 and 64; and those of the sixteen Chromatic Melas are 1, 2, 4, 7, 9, 13, 17, 19, 24, 30, 34, 35, 36, 51, 53 and 60. The Melakarta numbers of the twelve wrong Melas are 3, 5, 11, 31, 39, 40, 41, 46, 48, 52, 54 and 61.

Captain C. R. Day in his well-known work on the music of South India and Deccan gives a list of thirty-nine Melas with some Rāgas based on them. Of these six are Primary, ten are Secondary and fifteen are Chromatic Melas. The remaining eight are inexplicable wrong Melas. The Melakarta serial numbers of the six Primary Melas are the same as those

given above ; those of the ten Secondary Melas are 10, 14, 15, 16, 21, 27, 57, 58, 59 and 64 ;, and those of the fifteen Chromatic Melas are 1, 2, 4, 7, 13, 17, 33, 35, 36, 44, 45, 51, 53, 60 and 69. The numbers of the eight wrong Melas are 11, 31, 39, 40, 41, 42, 47 and 67.

It will be observed that the six Primary Melas, eight of the Secondary Melas and eleven of the Chromatic Melas are common to both the aforesaid authors.

In the book named "South Indian Musical Guide" or "Sangîtānubhava Svara Sangraha" (published by M. Adi & Co., Mount Road, Madras). there is a list of one hundred Rāgas based on twenty Melas including the six Primary Melas, the four Secondary Melas Nos. 16, 21, 27 and 64, the seven Chromatic Melas Nos. 9, 17, 36, 45, 51, 53 and 60, and the three wrong Melas Nos. 6, 39 and 54. It is a strange fact that the wrong Mela No. 39 persists throughout the whole history of South Indian music since the time of Rāmāmātya in the name Varālî with or without a prefix. We have seen that the well-known Shuddha-Varālî Mela, which had somehow lost its original correct form, regained it in Shuddha-Varālî Mela of Somanātha and came subsequently to be called Pantu-Varālî, which is mentioned by almost all modern writers and used in the well-known Rāga Darbārî Todî of Hindusthāni music[10]. Each of the correct Melas mentioned in the above-mentioned book is to be found in one or both of the other two works.

Herbert A. Popley, B. A., in his book named "The Music of India" gives a list of eleven most important Melas (which he calls primary Rāgas) including the six Primary Melas, the two Secondary Melas Nos. 15 and 16, and the three Chromatic Melas Nos. 36, 45 and 53. This is the only list which does not include any wrong Mela.

It is to be noticed that none of the last-mentioned two books includes Mela No. 1 (Kanakāngî) in its list. This points

10. Sambamoorthy states in his booklet that Rāga Pantu-Varālî is sung in the present day in Mela No. 51 (p. 51). All other writers including Mr. Popley speak about the use of Mela No. 45 in modern music.

to the fact that this Mela, which is the Scale of Origin of South Indian music and was very popular in the medieval period, is either obsolete or very rarely used[11].

The Melakartā scheme includes only seven Melas named after medieval Rāgas, with two syllables prefixed to each for the purpose of ascertaining its Melakartā number according to what is known as the *Katapayadi* formula. These are Todi, Mālava-Gaula, Bhairavî, Kāmbhojî, Shankarābharana, Nāta and Pantu-Varālî with the prefixes Hanumat, Māyā, Nata, Hari, Dhîra, Chala and Shubha respectively. The absence of all other names of medieval Melas from the Melakartā may lead to the inference that most of these Melas, if not all, have become obsolete.

H. MODERN MELAS OF SOUTHERN INDIA.

Different lists of modern Melas are found in the four books mentioned above. Thirty-one out of the forty-three Melas mentioned in the book of P. Sambamoorthy have been found to be correct. The same number of Melas has been found to be correct out of the thirty-nine Melas mentioned by Captain Day. Seventeen out of the twenty Melas mentioned in the book published by M. Adi & Co. are correct. All the eleven Melas mentioned by Rev. Popley are correct. The total number of correct Melas found in these four books is thirty-seven, of which six are Primary, eleven Secondary and twenty Chromatic. All these Melas have been included in the list given below on the assumption that they are in actual use in

11. The following remarks of Mr. Popley regarding this Mela will be found interesting :—

"It is most strange scale to Western ears and is not common in South India today. Judging by the *Ratnākara* and Svaramela-Kalānidhi, it was very popular in the sixteenth century. It corresponds with the ancient Greek Chromatic scale."

The Music of India, p. 42.

Mr. Popley was quite right in identifying this Scale with the ancient Greek Chromatic Scale. But, in indentifying it with the Shuddha Scale of Sārngadeva he was misled by south Indian writers, who, as shown above, misunderstood and misused Sharngadeva's Vikrita notes.

modern Kārnātic music. Their Melakartā names together with their Signatures and Serial Numbers and the Scales and the Modes they represent have been shown in the list.

The number of correct Melas mentioned by medieval authors is thirty. Five of these are not found in the above mentioned modern books. They are, therefore, to be considered lost to modern Karnatic music. Twelve new Melās have, however, been added to that music. Signatures and Serial Numbers of the five lost Melas and the Scales and the Modes they represent are given below.

(a). Five lost medieval Melas of Southern India :

Signature and Serial Number		*Scale and Mode represented*
1. Go (8)	...	Sec. I, 1 or Sec. IV, 4
2. GiMi (49)	...	Chrom. A, II, 7
RiDoNo (50)	...	Chrom. A, III, 1
GiMiDi (67)	...	Chrom. A, V, 4
MiDo (90)	...	Chrom. B, III, 6

(b). Thirty-seven modern Melas of Southern India :

Melakartā Name and Number	*Signature and Serial Number*	*Scale and Mode represented*
1. Dhîra-Shankarā-bharana (29)	Shuddha (1)	Primary
2. Hari-Kāmbojî (28)	No (2)	Do
3. Kharaharapriyā (22)	NoGo (3)	Do
4. Nata-Bhairavî (20)	NoGoDo (4)	Do
5. Hanumata-todî (8)	NoGoDoRo (5)	Do
6. Mecha-Kalyānî (65)	Mi (7)	Do
7. Nātakapriyā (10)	RoGoNo (9)	Sec. I, 2 or Sec. IV, 5
8. Vāchaspati (64)	MiNo (11)	Sec. I, 4 or Sec. IV, 7
9. Chārukeshî (26)	DoNo (12)	Sec. I, 5 or Sec. IV, 1
10. Kiravanî (21)	GoDo (15)	Sec. II, 1
11. Hemavatî (58)	GoMiNo (18)	Sec. II, 4
12. Bakulābharana (14)	RoDoNo (19)	Sec. II, 5
13. Sarasāngî (27)	Do (22)	Sec. III, 1

Melakartā Name and Number	*Signature and Serial Number*	*Scale and Mode represented*
14. Dharmavatî (59)	GoMi (25)	Sec. III, 4
15. Chakravāka (16)	RoNo (26)	Sec. III, 5
16. Māyā-māla-vagaula (15)	RoDo (29)	Sec. V, 1
17. Simhendra-madhyama (57)	GoMiDo (32)	Sec. V, 4
18. Shulinî (35)	Ri (36)	Chrom. A,I, 1
19. Dhenukā (9)	RoGoDo (38)	Chrom. A,I, 3b
20. Vāgadhîshwari (34)	RiNo (43)	Chrom. A,II, 1
21. Nāgānandanî (30)	Di (46)	Chrom. A,II, 4
22. Bhavapriyā (44)	RoGoMiDoNo (48)	Chrom. A,II, 6
23. Varunapriyā (24)	GoDi (53)	Chrom. A,III, 4
24. Gāngeya-bhushanî (33)	RiDo (57)	Chrom. A,IV, 1
25. Nîtimatî (60)	GoMiDi (60)	Chrom. A,IV, 4
26. Chalanāta (36)	RiDi (64)	Chrom. A,V, 1
27. Shubha-pantu-varalî (45)	RoGoMiDo (66)	Chrom. A,V, 3b
28. Vanaspati (4)	RoGooNo (72)	Chrom. B,I, 2
29. Ratnāngî (2)	RoGooDoNo (79)	Chrom. B,II, 2
30. Gamanāshrama (53)	RoMi (80)	Chrom. B,II, 3a
31. Jhankāradhwani (19)	GoDoNoo (82)	Chrom. B,II, 5
32. Suryakāntā (17)	Ro (87)	Chrom. B,III, 3a
33. Senāpati (7)	RoGoDoNoo (89)	Chrom. B,III, 5
34. Gāyakapriyā (13)	RoDoNoo (96)	Chrom. B,IV, 5
35. Dhātuvardhanî (69)	RiMiDo (97)	Chrom. B,IV, 6
36. Kanakāngî (1)	RoGooDoNoo (103)	Chrom. B,V, 5
37. Kāmavadhanî (51)	RoMiDo (104)	Chrom. B,V, 6a

The thirty-seven modern and the lost five medieval Melas make up a total of forty-two Melas. Of these the two lost medieval Melas Sāranga or GiMiDi and Devakriyā or GiMi are not included in the Melakartā scheme. The five Melas, which, added to the remaining forty Melas, give the total number of correct forty-five Melas of the Melakartā scheme, are given below.

	Melakartā Name and Number	*Signature and Serial Number*	*Scale and Mode represented*
1.	Kosala (71)	Ri Mi (20)	Sec. II, 6
2.	Rasikapriyā (72)	Ri Mi Di (30)	Sec. V, 2
3.	Chitrāmbarî (66)	Mi Di (39)	Chrom. A, I, 4
4.	Shanmukhapriyā (56)	Go Mi Do No (41)	Chrom. A, I, 6
5,	Māraranjanî (25)	Do Noo (75)	Chrom. B, I, 5

Two sets of bracketed numbers will be found to have been used in the Melas belonging to the Melakartā Scheme. The numbers in the first column are those of that scheme and the numbers in the second column are the Serial Numbers of the Perfect Scheme. There were no names of the Melas in the original scheme of Venkateshwara and the Melas were distinguished from each other by means of their numbers. The Vikrita notes characterizing a Mela of a particular number had to be ascertained by reference to the Mela-Prastāra shown above. These numbers are, therefore, of great importance in this scheme. Names of Melas which were subsequently added to the scheme were so coined that the first two syllables of the name provided a clue to the number of the Mela. This device, which is known as 'Katapayādi', is explained below.

In order to astertain the number of a pārticular Mela the numbers of the first two syllables of the name of the Mela are to be first ascertained from the following table and then the figures of these two numbers are to be placed in the reverse order.

Table

The nine syllable from क·····	क ख ग घ ङ च छ ज झ	
	1 2 3 4 5 6 7 8 9	
The nine syllables from ट·····	ट ठ ड ढ ण त थ द ध	
	1 2 3 4 5 6 7 8 9	
The five syllables from प·····	प फ ब भ म	
	1 2 3 4 5	
The eight syllables from य·····	य र ल व श ष स ह	
	1 2 3 4 5 6 7 8	
Example :	न=0	

The first two syllables of the name हरि-काम्बोजी are ह and र. The figures of their numbers are 8 and 2 respectively. The number of the Mela is, therefore, 28.

(c). Twenty-seven incorrect Melas of the Melakartā scheme.

Mala-kartā Num-ber	*Signature*	*Mela-kartā Num-ber*	*Signature*	*Mela-kartā Num-ber*	*Signature*
(3)	RoGooDo	(39)	RoGooMiDo	(50)	RoMiDoNo
(5)	RoGoo	(40)	RoGooMiNo	(52)	RoMiNo
(6)	RoGooDi	(41)	RoGooMi	(54)	RoMiDi
(11)	RoGo	(42)	RoGooMiDi	(55)	GoMiDoNoo
		(43)	RoGoMiDo Noo		
(12)	RoGoDi			(61)	MiDoNoo
(18)	RoDi	(46)	RoGoMiNo	(62)	MiDoNo
(31)	RiDoNoo	(47)	RoGoMi	(67)	RiMiDoNoo
(37)	RoGooMiDo Noo	(48)	RoGoMiDi	(68)	RiMiDoNo
(38)	RoGooMiDo No	(49)	RoMiDoNoo	(70)	RoMiNo

These Melas are not included in the Perfect Scheme.

I. A PRECIOUS HERITAGE OF DRAVIDIAN CULTURE TO BE SAVED.

The Scale of Origin and the bulk of Melas of South India have been, as we have seen, of Chromatic character since the time of Rāmāmātya, who wrote his book in the middle of the sixteenth century A.D. Chromatic Scales were unknown to the Aryan settlers of India. In including Melas based on these Scales in his book Rāmāmātya evidently followed an ancient tradition, which was distinctly non-Aryan. Presumably, it was a Dravidian tradition. South Indian music was, it appears, originally Dravidian music which was subsequently clothed in an Aryan garb. Chromatic Scales and Modes, which were the distinctive features of Dravidian music, permeated throughout the Indian peninsula, and today we find some of the best specimens of them embodied in the musical system of North India. Indians were the only Aryans who succeeded in assimilating these unique Scales. Greeks failed to do so. It is incumbent on Indians to see that these

beautiful products of Dravidian culture do not meet with the same fate as they did in the hands of Greeks. There seems to be an unfortunate tendency amongst some south Indians to ignore or even to abandon this precious heritage of Dravidian culture. It is true that these Chromatic Melas are too difficult to master for an average musical artist. Unfettered licence of improvisation of *tānas* may not be always possible in compositions of Rāgas in these Melas. But, it must be remembered that the best treasures of art are those which are least attainable by the average artist. It is, therefore, the sacred duty of master artists of India, especially of the Southern School, to see that these Chromatic Melas are preserved, discovered and if possible re-discovered from the source of their origin. Popley informs us that traditions of a flourishing Dravidian School of music still persist amongst the Tamil people of Travancore and its adjacent districts, the homeland of the ancient Chera Kingdom, which for a considerable period exercised sovereignty over the whole of South India[12]. A diligent research in these regions by competent musical scholars may yet save some rich treasures of Dravidian culture from eternal oblivion.

12. Popley says :—

"The old melodies to which these songs (religious) were sung are now lost, though Travancore claims to have preserved some of them in the ancient Travancore *Rāgas*, such as *Indisā*, *Indalam*, *Pādi*, *Purānîā*. The beautiful strip of land on the south west coast of India between the Western Ghats and the sea, of which Travancore is now a part, was famed in the centuries before "Christ" for its commercial activities and its tropical products. This was then the homeland of the Chera Kingdom, which for a considerable period exercised sovereignty over the whole of South India. It was also the home of an ancient Tamil culture which rivalled the Sanskrit culture of the sacred cities of North India. It is, therefore, no wonder that we should find here a flourishing school of music whose traditions have persisted until this day. It is interesting to note that it was about this time that Gregory the Great was developing music in Europe for religious purposes".

"The Music of India" p. 13

J. FORTY-TWO MELAS OF SOUTHERN INDIA.

Signature and Serial Number	Scale and Mode represented	Used in Modern Music	Used in Medieval Music
1. Shuddha (1)	Prim. I, 1; II, 4; III, 7; IV, 3; V, 7	+	+
2. No (2)	Prim. I, 5; II, 1; III, 4; IV, 7; V, 4	+	+
3 No Go (3)	Prim. I, 2: II, 5: III, 1; IV, 4; V, 1	+	+
4. No Go Do (4)	Prim. I, 6; II, 2; III, 5; IV, 1; V, 5	+	+
5. No Go Do Ro (5)	Prim. I, 3; II, 6; III, 2; IV, 5; V, 2	+	+
6. Mi (7)	Prim. I. 4; II, 7; III, 3; IV, 6; V, 3	+	+
7. Go (8)	Sec. I, 1; IV, 4	0	+
8. Ro Go No (9)	Sec. I, 2; IV, 5	+	0
9. Mi No (11)	Sec. I, 4, IV, 7	+	0
10. Do No (12)	Sec. I, 5, IV, 1	+	0
11. Go Do (15)	Sec. II, 1	+	+
12. Go Mi No (18)	Sec. II, 4	+	+
13. Ro Do No (19)	Sec. II, 5	+	+
14. Do (22)	Sec. III, 1	+	+
15. Go Mi (25)	Sec. III, 4	+	0
16. Ro No (26)	Sec. III, 5	+	+
17. Ro Do (29)	Sec. V, 1	+	+
18. Go Mi Do (32)	Sec. V, 4	+	+
19. Ri (36)	Chrom. A, I, 1	+	+
20. Ro Go Do (38)	Chrom. A, I, 3b	+	+
21. Ri No (43)	Chrom. A, II, 1	+	+
22. Di (46)	Chrom. A, II, 4	+	+

Signature and Serial Number	Scale and Mode represented	Used in Modern Music	Used in Medieval Music
23. Ro Go Mi Do No (48)	Chrom. A, II, 6	+	+
24. Gi Mi (49)	Chrom. A, II, 7	0	+
25. Ri Do No (50)	Chrom. A, III, 1	0	+
26. Go Di (53)	Chrom. A, III, 4	+	0
27. Ri Do (57)	Chrom. A, IV, 1	+	0
28. Go Mi Di (60)	Chrom. A, IV, 4	+	0
29. Ri Di (64)	Chrom. A, V, 1	+	+
30. Ro Go Mi Do (66)	Chrom. A, V, 3b	+	+
31. Gi Mi Di (67)	Chrom. A, V, 4	0	+
32. Ro Goo No (72)	Chrom. B, I, 2	+	+
33. Ro Goo Do No (79)	Chrom. B, II, 2	+	+
34. Ro Mi (80)	Chrom B, II, 3a	+	0
35. Go Do Noo (82)	Chrom B, II, 5	+	0
36. Ro (87)	Chrom. B, III, 3a	+	0
37. Ro Go Do Noo (89)	Chrom. B, III, 5	+	0
38. Mi Do (90)	Chrom. B, III, 6	0	+
39. Ro Do Noo (96)	Chrom. B, IV, 5	+	+
40. Ri Mi Do (97)	Chrom. B, IV, 6	+	0
41. Ro Goo Do Noo (103)	Chrom. B, V, 5	+	+
42. Ro Mi Do (104)	Chrom. B, V, 6a	+	+

N.B.—The sign + indicates use.

PART III.

MODERN RĀGAS OF HINDUSTHĀN.

CHAPTER XII.

CONCEPTION OF RAGA AND ITS EVOLUTION

A. CONCEPTION OF RĀGA.

(a). Universal appeal : Though the conception of Rāga had its origin in the soil of India, there is no ground for supposing that it has to do with anything that is either regional or racial in character. The Types (Rāgas) have an universal appeal which makes them acceptable to all peoples, if they are judiciously adapted to their various tastes and temperaments. In spite of a historic background which is solely Indian they are based on facts which are purely scientific in origin and, on artistic principles, perfectly sound and quite universal in application. There are at present two different schools of music in India : the Hindusthānî and the Kārnātic (South Indian), with compositions in widely different languages and in varying styles. Nevertheless, melodies of both the schools are found on ultimate analysis to possess a common basic character. Many melodic Types are common to both the schools, though most often they are called by different names. There is, therefore, no reason why these Types should not be utilized anywhere outside India or find embodiment in non-Indian languages. As they are the outcome of the highest and the noblest development of the melodic art, every people will be greatly benefited by their study, and every melodic system will be enriched by adopting them according to taste.

(b). Not Song : In order to understand the conception of Rāga it must be clearly distinguished from song. A single

Rāga can be made the basis for composition of any number of different songs. But, such a song, which may be called a 'Rāga-song', is quite different in character from a song, as it is ordinarily understood. These popular songs are invariably based on lyrical poetry and their melody possesses no independent significance apart from the poetry. They may be called 'Poetic Songs' (Kāvya Sangîta) in order to distinguish them from a 'Typical Song' (Rāga Sangîta).

The object of Poetic Songs is to interpret the ideas and sentiments expressed by poetry. Words are, therefore, essential for them. On the other hand, the sole object of Rāga music being melodic beauty, words are non-essential in it. In fact, melodic compositions, which give best expression to Rāgas, are those which are devoid of words. Some soft syllables, which are quite meaningless, are used in these compositions as aid to human voice and sometimes also for rhythmic purposes. They are called Ālāpa and Tārānā. Instrumental music, which is one of the best means for the expression of Rāga melody, has nothing to do with words or syllables. For rhythmic purposes strokes of the plectrum serve as substitutes for syllables. It is clear from these facts that words of language have no necessary connection with Rāga melody. Nevertheless, most of the classical Rāga songs are based on some sort of poetry. These are composed in praise of the Deity or a divine incarnation or the patron king of the composer. They also often describe the love episodes of some divine incarnations especially those of Shri Krishna. They are couched in simple language containing little of real poetry and are devoid of all abstract ideas and lyrical sentiments. The ideas and sentiments, if any, are too simple to arrest the listener's attention and only act as aid to the appreciation of melodic beauty of the musical composition. The language of classical Rāga songs is usually so archaic that their meaning is often not clearly understood by modern musicians. But, that does not stand in the way of appreciation of artistic beauty, which is the main object of these songs. In such cases, the words of language serve nearly the same purpose as the meaningless syllables of Ālāpa and

Tarāna. The only condition to be satisfied is that the words must be soft and soothing and capable of giving full expression to the melody. Rāga songs of Northern India are generally written in the Hindusthānî language and it is often believed that no other language is suitable for the classical style of music. There is no ground for such a belief. Any language which has a sufficient number of words suitable for melodic expression can be used for the composition of Rāga songs. Those words which contain soft consonants and open vowels are best suited for melodic expression. Of consonants Dentals (*Dantya*), Palatals (*Tālavya*) and Labials (*Aushthya*) are the best. The Gutturals (*Kanthya*) come next. The Cerebrals (*Murdhanya*) are least suited for music and should be avoided as much as possible. They are only suitable for strongly accented syllables in rhythmic expression. Aspirate consonants should also be used sparsely. As regards vowels, their character as analysed in the first chapter will be of great help in determining their suitability for music. The best of all vowels is "a" (in 'far') which is sounded with the mouth fully open. Next to it are "ă" (in 'fall'), "â" (in 'fate') and 'i' (in 'sit'). Last in the order are 'o' (in 'note') and 'u' (in 'put'). The last mentioned vowels is the worst of all and should be avoided as far as possible.

(c). Independent of poetry : It is urged by some people that the best of all songs are those in which there is a happy blending of poetry and *melody*[1]. For the average listener, who has no predilection for a particular art, this statement is quite justified. But, the question assumes a quite different aspect when we view it from the stand-point of a votary of a particular art. Such a person is naturally anxious to guard jealously the independence and purity of his favourite art, and is reluctant

1. Poet Tagore in one of his writings referred to such combination as a felicitous marriage of the two arts. But, we suppose he as a poet conceived his own art as the dominant partner in this marriage—a position which a votary of the other art would hardly view with complacence.

to admit that it is dependent on another art for the highest fulfilment of its purpose. As a matter of fact, perfect combination of two arts presupposes proficiency of the artist in both, which must always be a rare attainment. The world has yet to see the combination of a Tānasena and a Kālidāsa or of a Beethoven and a Shakespeare in the same person. What the result of such a combination, if ever, would be we cannot forsee. But, the absence of such combination has never stood nor should ever stand in the way of development of either music or poetry as an independent art.

Then again, music as a pure art must be distinguished from music as a mixed art or as an applied art. Dramatic art is the best instance of a mixed art, in which poetry, music, painting and histrionics are skilfully combined. Naturally good dramatic performances are the most popular of all such arts. Devotional song is the best instance of applied art. Use of music in prayer is found almost all over the world. In India devotees are believed to have attained sainthood and divine ecstasy by means only of prayerful songs. This is no doubt the noblest application of music to a special purpose. The Indian adage 'there is nothing higher than music' (Gānāt parataram na hi) is justified from this point of view. But, a devoted artist loves his art for art's sake, for the very joy of it and not for any ulterior object. He wants to enjoy it as a pure art. Words have consequently little significance to him and are tolerable only so far as they help to enhance the sonorous beauty of vocal melody. However, as language and vocal music have the human voice as their common vehicle, their association is quite natural and almost unavoidable. Mellifluous language need not offend the susceptibilities of a musical artist so long as it is used as means of interpreting the significance of melody. The relation of language to melody is quite the reverse in Poetic Songs, inasmuch as in them melody is used as a means of interpreting poetry, which is the main thing in these songs. In other words, in pure Typical Songs poetry, if any, must come after the melody and not before it, as in Poetic Songs.

The aforesaid distinction between Typical Songs and non-typical Poetic Songs is rather superficial. The real difference between these two classes of music is internal and is to be sought in their texture. This is manifested by its effects on the attitude of the composer and the practical artist. The composer of a Poetic Song is the master of the situation. He is quite individualistic in his attitude and resents any attempt on the part of the practical artist to alter a single note in his compositions or to introduce the slightest variation or additional embellishment. The latter's function is something like that of a reproducing machine. His superiority to a machine lies in his capacity as a living being, of giving full expression to the spirit of the composer. In fact, his merit is judged by the amount of expression he is capable of giving to that spirit according to the quality of his voice, which is his main asset. His freedom for variation and embellishment is negligible unless he dares to offend the composer. On the other hand, in Typical melody both the composer and the artist have ample scope for showing their talent and personality. This is rendered possible by the fact that both of them are bound by the same loyalty to a common model, namely, the "Type", which, though so definite in the structural arrangements of its notes that none can deviate from it without destroying its character and significance, affords sufficient liberty for the artist to present it in his own style and to enhance its beauty by means of embellishments of his own choice and liking.

The individualistic attitude of the composer of a Poetic Song is attributable to his freedom untramelled by any rules of art or technique worth the name. From an artist's point of view, therefore, it is doubtful whether these songs can claim the dignity of true art.

(d). Individuality combined with flexibility : Every Melodic Type has an individuality which marks it out from other Types. Nevertheless, hundreds of songs can be composed in different styles on the basis of a single Type without destroying its individuality or characteristic flavour. This feature of Types gives the composer immense scope for

bringing into play his musical faculty and personal genius. The quality of his composition is judged as well by the degree of the impress of his personality on it as by the degree of his fidelity to the original Type[2]. His freedom is, however, limited, being circumscribed within the four corners of his own composition. No such limit can be imposed on the freedom of the executant, which is almost unfettered if he has only the ability to utilise it. The only conditions which must be fulfilled by him are : first, that he must be faithful to the Type in all his variations ; secondly, that he must not deviate from the rhythmic form and style adopted by the composer ; and thirdly, that he must return occasionally and finally to the main theme of the original composition. With these limitations he has the liberty to introduce as many variations and embellishments as are capable of pleasing his audience. An unskilful artist is by misuse of his freedom apt to run the risk of trying the patience of his listener and tending towards boredom. The freedom of the practical artist is, however, extremely limited in rigid styles like 'Dhrupad'. Ancient melody was, it appears, mostly rigid in character. It is said that Mahommedan musicians of the fifteenth century introduced the free style called 'Kheyāl' (a Persian word which literally means "caprice"). This innovation was the natural outcome of the innate desire of the artist to show his own personality to the best advantage. It was discovered that rigidity of the rhythmic structure of a composition stood in the way of an artist's freedom for variations which were possible without affecting the character of the Type. The new style was accordingly based on light and easy rhythms and time-measures (Tālas). What was lost in austerity and grandeur was compensated

2. Many classical compositions are found to deviate markedly from the Types. This may be due to the circumstance that owing to the absence of notations, the original compositions may have changed considerably. That there is much truth in this assumption is shown by the difference in the notations of the same classical song by different musicians.

by variety in the presentation of the Type by the artist. Later on, other lighter styles such as 'Tappā' and 'Thumri' were introduced. These light styles natuarlly became more popular than the old rigid one, which required higher qualificaions in the listener for its appreciation.

In spite of their immense flexibility Types are so definite in character, that in the final stage of their development which was reached about the fifteenth century A.D. musical writers came to conceive them as embodiments of living entities represented as demi-gods. Books of this period abound in elaborate poetic descriptions of these beings called Rāgas or male Types and Rāginîs or female Types according to their supposed masculine and feminine characters. These archaic notions are rapidly losing ground owing to their uselessness from the practical point of view. The persistence of these ideas for a long time, however, point to the fact that these Types are remarkably definite and significant.

(e). Not tune : Rāga must also be clearly distinguished from tune. A tune differs from a Type in its rigidity and inflexibility. There are popular tunes to be found all over the world which are quite definite in their structure. Hundreds of songs of similar sentiment can be composed in one of these tunes. In this respect a tune resembles a Type to a certain extent. But, the arrangement of notes in tunes is so stereotyped that either the composer or the artist has little scope for introducing variations. All songs in a single tune are indistinguishable from each other so far as their melody is concerned. These tunes are usually very simple in their structure and possess no technique worth the name.

(f). Culmination of melodic art : Though Types possess a certain amount of definiteness in their structure, this does not amount to that rigidity which characterises a popular tune. A Type may be likened to a pattern, which, though fixed in its outline so far as its essential features are concerned, is not quite stereotyped and allows a large amount of freedom for variation in the arrangement of its component parts and for introduction of embellishments. In order to reach the

standard of a true Type its pattern must be clearly distinguishable from those of other Types and readily recognisable even when appearing in different rhythmic forms and styles and with different decorations. The joy of a Rāga-song is akin to that of recognition of a beloved individual in different garbs and ornaments, and amidst varying environments and situations. The conception of Rāga marks the final stage in the development of melodic art.

B. EVOLUTION OF RĀGA CONCEPTION.

A historical survey of the evolution of the Rāga conception, so far as in the absence of any chronological data it is possible with the aid of existing ancient and medieval treatises on Indian music, is calculated to give a fairly clear idea about that conception.

In tracing the growth of this conception, we find that the word "Rāga" is used occasionally in ancient works and that too in different senses in different works, quite distinct from its modern import. Several centuries seem to have elapsed before the word acquired its present significance.

(a). "Rāga" in Nāradîyā Shikshā : The word 'Rāga' occurs four times in Nārādîyā Shikshā, which forms part of the later Vedic literature and is the oldest extant work dealing with Indian music, thrice in the second Khanda and once in the fourth Khanda of the first Prapāthaka. It is found in the list of subjects dealt with, given in the second verse of the second Khanda, which runs as follows :—

"तान-रागस्वर-ग्राम-मूर्छनानां तु लक्षणम् ।
पवित्रं पावनं पुण्यं नारदेन प्रकीर्तितम् ॥"

"Nārada has described the pure, sacred and purifying features of Tāna, Rāga-swara, Grāma and Murchhanā".

Nāradîyā Shikshā, I, 22.

It is evident that Rāga mentioned in this passage was a note (swara) and not a combination of notes, i.e. a melody. Which notes were to be considered as Rāgas and why, will be

seen from the sixth and the seventh verses of the same Khanda. These are as follows :—

"षड्ज-मध्यम-गान्धाख्यो ग्रामाः प्रकीर्तिताः ।
भूर्लोकाज् जायते षड्जो भुवर्लोकाच् च मध्यमः ॥
स्वर्गान् नान्यत्र गान्धारो नारदस्य मतं यथा ।
स्वरराग-विशेषेण ग्रामरागा इति स्मृताः ॥"

"There are three Grāmas, viz., the Shadja Grāma, the Madhyama Grāma and the Gāndhāra Grāma. In the opinion of Nārada the note Shadja is born in the region called Bhuh (earth), the note Madhyama in the region called Bhuvah and the note Gāndhāra in the region called Svah (heaven). On account of their characteristic pleasing quality these three notes are known as Grāma-Rāgas."

It is clear from these passages that the notes Shadja, Madhyama and Gāndhāra were considered as the Rāga-svaras of the three respective Grāmas, which were named after them. The reason why they were to be so considered is that they possessed special pleasing property. In the last line the word Rāga is used twice in different senses. In the expression 'Svara-Rāga, it is used in its literal sense "pleasing quality", and in the expression 'Grāma-Rāga' it denotes a particular note[3].

This was evidently the most important note in the Scale to which it belonged. Here we find the earliest reference to the Tonic-idea. But, we are not told in this Khanda what the functions of a Grāma-Rāga were or how it was brought to prominence.

(b). **Rāga-svara as Nyāsa**: The word 'Rāga' occurs once again in the fifth verse of fourth Khanda in the expression "nipatati Madhyama-Rāge" (falls on the Madhyama-Rāga) used in the description of "Shādava", which is one of the seven

3. A similar figurative use of the word Rāga is also to be found in the case of colours, e.g., lohita-rāga (red-colour) neela-rāga (blue colour) etc. Musical notes are found in some books to be likened to or even identified with particular colours.

basic modes mentioned in this Khanda[4]. A similar expression viz., "Panchamo viramate" (Panchama concludes) is found in the description of the mode called "Panchama".[5] There is no doubt that the note Panchama, which gave its name to the mode, was its Rāga-svara. Though the descriptions of the modes given in this Khanda are very meagre and difficult to understand, there is no doubt that the main function of the Rāga note was to conclude a piece of composition. The words "nipatati" (falls) and "viramate" (concludes) in the above expressions clearly indicate that conclusion in Shādava and Panchama modes was made on the notes Madhyama and Panchama respectively, which were the Rāga notes of these modes. That the final note had already become very important in the music of this ancient period is shown by the use of the word 'Nyāsa' in the tenth verse of the Khanda where the expression "Madhyame Nyāsah" occurs in the description of the mode 'Kaishika-Madhyama'[6]. From the use of the expression "prādhānyam Panchamasya tu" (Panchama is predominant) in the description of mode Kaishika, we may infer that Panchama was the Rāga and Nyāsa note of that mode[7]. Nothing is said about the Rāga or the Nyāsa notes of Shadja Grāma, Madhyama Grāma and Sādhārita in this Khanda. In the second Khanda the Rāga

4 "ऋषभोत्थित षड्जहतो धैवतसहितश्च पंचमो यत्र ।
निपतति मध्यमरागे तं निषादं षाडवं विद्यात् ॥"

Shiksha I, 4, 5.

5 "यदि पंचमो विरमते गांधारश्चान्तरस्वरो भवति ।
ऋषभो निषादसहितस् तं पंचमं ईदृशं विद्यात् ॥"

Ibid I, 4, 5.

6. "कैशिकं भावयित्वा तु स्वरैः सर्वैः समन्ततः ।
यस्मात् तु मध्यमे न्यासस्तस्मात् कैशिकमध्यम. ॥"

Shiksha I., 4, 10.

7 "काकलिर्दृश्यते यत्र प्राधान्यं पंचमस्य तु ।
कश्यपः कैशिकं प्राह मध्यमग्राम-सम्भवम् ॥"

Shiksha. I, 4, 11.

In the ninth verse we find the expression "पंचमस्थं तु कैशिकम्" We think this must be a misreading for "पंचमान्तं तु कैशिकम्"

notes of Shadja and Madhyama Grāmas have been stated to be their name-notes. The Rāga note of Sādhārita is Gāndhāra, as it is identical with Gāndhāra Grāma. But, there is no mention of it in the Shikshā. Except in the cases of Shadja Grāma and Sādhārita, the statements made above about the Nyāsa notes of the other five basic modes are corroborated by the Kudimiyāmālāi rock inscription. There the Nyāsa notes of both Shadja Grāma and Sādhārita are found to be Madhyama. Five out of the seven modes have Madhyama as the Nyāsa in the compositions of the inscription. Absence of explicit mention in the fourth Khanda of the Shikshā and the ancient tradition of the sacredness of Madhyama may account for the mistakes about the Shadja Grāma and Sādhārita made in the rock inscription.

(c). **Four noticeable features of compositions of the rock inscription :** We get little information about the rules of melodic composition from the meagre descriptions of the seven basic modes given in the Shikshā. Some amount of information about these rules is obtained from the compositions of the rock inscription. The following features are noticeable in these compositions :—

(1) Two notes are brought into prominence in each composition. One of them is Sa, which is put at the end of all the sixteen phrases of four notes in the first of five to seven sections of which each piece is composed. The other prominent note in five of the compositions is Ma and in the remaining two it is Pa. These are placed at the end of all the sixteen phrases in the last section of the compositions. The two notes thus prominently placed in each mode were, therefore, its Tonics (Amsas).

(2) Distinction in modal structure is made by the use of sharpened Gāndhāra, which is called Antara, or of sharpened Gāndhāra and Nishāda, called Antara and Kākalî, corresponding to M♯ and S♯ respectively of the modern Scale. Panchama and Shādava have Antara (called 'A' in the inscription) ; and Sādhārita, Kaishika-Madhyama and Kaishika have both Antara and Kākalî (called 'Ka' in the inscription). The Shadja and Madhyama

Grāmas are identical in modal structure with the modern Nb-Gb-Mela ; Panchama and Shādava with the Nb-Mela ; and Sādhārita, Kaishika-Madhyama and Kaishika with the Shuddha Mela.

(3) The æsthetic necessity of omitting notes seems to have only begun to be dimly felt, as may be inferred from the name Shādava, which came to signify a hexatonic mode in the following Jāti period. The Shādava mode was, therefore, in all probability hexatonic. The omitted note was evidently Pa, which appears to have been mistakenly inserted in only two out of sixty-four phrases of the Shādava composition. The Auduva form of modes which omit two notes had not yet come into existence.

(4) The idea of Nyāsa or final had come into existence, as would appear from the use of either Ma or Pa at the close of every phrase of the last sections of the compositions. The æsthetic value of the Nyāsa was, however, not yet fully realized. Musicians appear to have been handicapped by the traditional superstition regarding the sacredness of Madhyama, which made it compulsory to put that note at the end of all melodic compositions. Subsequently, this superstition was partially overcome, as it appears from the use of Pa as the final in Panchama and Kaishika.

Although, the seven basic modes used in the Kudimiyāmalāi rock inscription are the same as those mentioned in the Shikshā, the former appears to represent a later and more advanced state of musical development. For, we find that while at the time when the aforesaid Khanda of the Shikshā was written the modes were considered to have only one central note, viz., the Rāga-swara, which was brought to prominence by placing it at the end of a composition ; at the time of the compositions of the rock inscription two notes were given prominence, one at the beginning and the other at the end of a composition. Here we find the earliest appreciation of the bicentric character of Scales. The two Tonics

were placed a fourth apart from each other (Sa, Ma) in five of the modes, and a fifth apart (Sa, Pa) in the remaining two. These were analogous to the plagal and authentic modes of medieval Europe.

(d). The three central notes of a Grāma in each Mārjanā : The next stage of development is represented by the three kinds of tuning (Mārjanā) of the accompanying drums (pushkaras), fonnd in the thirty-fifth chapter of the Bhāratiya Nātya Shāstra (Kāvyamālā Edition).

These were Māyurî, Ardha-māyurî and Karmāravî. Three drums were played together. They were tuned to different notes in three methods of tuning. In the Māyurî Mārjanā, which was intended for the Madhyama Grāma the drums were tuned to Sa, Ga and Pa ; in the Ardha-māyurî intended for the Shadja Grāma, they were tuned to Sa, Ma and Dha ; and in the Karmāravî intended for the Gāndhāra Grāma they were tuned to Ri, Pa and Ni. It cannot be doubted that the three notes in each kind of tuning were the central notes or Tonics (Amsas) of the Grāma for which it was intended. In the Māyurî form of Madhyama Grāma the positions of the Semitones and the Tonics were exactly the same as those of the modern Shuddha Scale of Northern India and the Diatonic Major Scale of Europe. This is also equivalent to the Sādhārana Grāma of Shārangadeva. The Māyurî tuning of Madhyama Grāma, which was the most popular of all the tunings was derived from the Kaishika mode which was, as we find in the Shikshā, created by Kāshyapa by substituting Panchama for Madhyama as the Rāga-swara (Tonic) of the Kaishika-Madhyama mode. In the rock inscription Sa was recognised as the other Tonic of Kaishika. The mediant Ga was added in the Māyurî Mārjanā, thus completing the three notes of the Tonic Triad. The positions of the Semitones in the Karmāravî form of Gāndhāra Grāma were the same as those of the Shadja Grāma. We are unable to account for this change in the form of the Gāndhāra Grāma. The form of this Grāma being made the same as that of Shadja Grāma, difference in tonality of the two Grāmas was made by the positions of the Tonics.

(e). "Rāga" in the Nātya Shāstra : The oldest authentic account of the Jātis is to be found in the twenty-eighth chapter of Bhāratiya Nātya Shāstra. The word "Rāga" is to be found in two places only of this chapter and that too in a sense quite different from its modern significance. Its first mention is in the following passages :

"अन्तरस्वर-संयोगो नित्यम् आरोहि-संश्रयः ।
कार्यः स्वल्पविशेषेण नावरोही कदाचन ॥
क्रियमाणोऽवरोही स्याद् अल्पो वा यदि वा बहुः ।
जातिराग-स्रुतिं चैव नयन्ते त्वन्तरस्वराः ॥"

"The Antara note must be always used in ascent whether sparsely or profusely ; but never in descent. If used either sparsely or profusely in descent, the Antara swaras bring about destruction of the "Rāga" of the Jāti".

The word "Rāga" is here used evidently in its abstract literal sense, "pleasing character" or "melodiousness" just as it was used in the word "Svara-Rāga" in the Shiksha.

The other place in which the word occurs is :

"रागश्च यस्मिन् वसति यस्याच् चैव प्रवर्तते ।
* * * * * *
परिचार्यः स्थितो यस् तु सोऽंशः स्याद् दशलक्षणः ॥"

"That (note) in which the Rāga resides and from which it arises ; and that which exists (as the ruling note) to be served by others, is the Amsa, characterized by ten features".

Here too the word appears to have been used in the sense given above. The pleasing character of a Jāti is in this passage stated to reside in and arise from its ruling note called Amsa.

(f). The five features of Jāti found in a modern Rāga : Although the word "Rāga" had not yet acquired its present significance in Jāti period considerable advance towards the conception of a modern Rāga is manifested in the Jātis as will appear from their five features explained below.

(1). **Amsa :**

The seven basic modes of the Shiksha had each only one central note called the Rāga-swara, which was brought to prominence by using it as the Nyāsa (final) of a melodic composition. Some avdance is found to have been made at the time of the rock inscription, wherein two notes are seen in prominent positions. The bicentric charater of Scales appears to have been perceived at this period. The introduction of the three methods of Mārjanā (tuning) for the three ancient Scales at a later period shows a clear perception of the Tonics. Three notes constituting a Consonant Triad were at this period always kept in the forefront by tuning three drums to these notes. These must have been the Lower Tonic, the Upper Tonic and the Middle Tonic (or Mediant) of the Scales. These three notes came to be called Amsas in the Jāti period. The importance and significance of the Tonics were now fully perceived. The total number of Amsas is stated in the Nātya Shāstra to be sixty-three. This number points to the fact that each of the twenty-one original Jātis had three *Amsas*[8]. The whole superstructure of the Jāti system was based on the various funtions of these Amsas. Three of the most important functions of the Amsas consisted in their use as the Graha, the Nyāsa and the Apanyāsa. Of these Graha is thus defined :—

"यः प्रवृत्तौ भवेद् अंशः सोऽंशो ग्रह विकल्पितः ।"

"That Amsa which is placed at the beginning is considered as the Graha",

Nātya Shāstra, 28, 75.

It appears from the following passage that of the three Amsas of a Jāti only that one which was used as the

8. This represents the ideal state of things which follows from a logical working out of the basic principles of Jāti system. The Nātya Shāstra records a decadent state of the Jāti system in which three of the Jātis were lost and each Jāti was given one to seven Amsas. The number sixty-three is made up in an ingenious way which has been explained in a preceding chapter.

Graha in a particular melody was called "the Amsa" of that melody :—

"अंशवच् च ग्रहास् त्वासां सर्वासाम् एव नित्यशः ॥"

"In all these (Jātis) the Grahas are invariably the same as the Amsas"

Nātya Shāstra, 28, 98.

This note was also called "Vādî".

'तत्र यो यत्रांशः स तत्र वादी ।"

"That (note) which is the Amsa in a certain place in the Vādî there".

Nātya Shāstra 28, 24.

"The Amsa" was called "Graha" when it was placed at the beginning of a composition and called "Vādî" when it was considered as the principal note in its relationship with the other notes either Samvādî or Anuvādî or Vivādî to it. The word "Vādî" is used in almost the same sense in modern Hindusthānî music, and generally speaking it may be taken as a substitute for the word "Amsa".

Whether the Graha of a Jāti melody was the very first note of the composition cannot be definitely ascertained. That no doubt is the best way of making the Amsa prominent. In the rock inscription the note Sa, which was evidently the Amsa, was placed at the end of every phrase of the first section in all the compositions. This method of bringing the Amsa to prominence is followed in the Kirtan style of Bengal music.

(2). Nyāsa :

The aesthetic significance of the concluding note of a melodic composition had dawned in the musical mind of the Grāma period. But, it was only dimly perceived. The rock inscription shows that Madhyama was used as the Nyāsa in five out of the seven basic modes. This was in accordance with the traditional sacredness of that note. The use of Panchama as Nyāsa in the two modes called Panchama and Kaishika were evidently bold departures from the ancient tradition at a later stage. The superstition regarding the compulsory use of Madhyama as the final note was fully overcome in the Jāti period. In fact, the reversal of the old notion was the basis of the Jāti system. This is evident from the fact that each

note of the Scale came to be considered as fit for being used as the final and that it was that very note which gave the name to the Shuddha Jāti in which it was used as the Nyāsa. It was further clearly enjoined that even in the Vikrita Jātis, which were derived from the Shuddha Jātis, all the features of the latter might be altered except the *Nyāsa*[9]. According to this rule every Jāti must have had only one Nyāsa. Allotment of two Nyāsas to Shadja Madhyamā Jāti and three to Kaishikî Jāti was clearly against this rule. The total number of Nyāsas is definitely stated to be twenty-one[10]. The number of Shuddha and Vikrita Jātis taken together must, therefore, have been also the same. It appears that three of the Vikrita Jātis were lost at a later period and the total number of Jātis came to be eighteen. In order to make up the number twenty-one, which was clearly in the memory of musicians, one additional Nyāsa was alloted to Shadja Madhyamā Jāti and two to Kaishikî. But, though the Nyāsa was given the greatest importance in the structure of a Jāti, its aesthetic value was not clearly realised at the earliest stage of Jātis. For, we find that although every note of the Scale might be used as the Nyāsa of a Shuddha Jāti, that note had as a rule to be the lowest note (Mandra) of the Jāti. At a later stage, when this rule was relaxed in the case of Vikrita Jātis, the real significance of the Nyāsa was more clearly understood. The Vikrita Jātis marked a higher state of developement, inasmuch as the Nyāsa might in these be notes having different relationships with the initial note. This relationship varied according to the note used as the Mandra. Three notes, which were the Amsas, might be made the Mandra of a Jāti. The Nyāsa might, therefore. have only three kinds of relationship with the Mandra *i.e.*, to say the initial of the octave used in the Jāti.

9. "शुद्धा अन्यूनस्वराः स्वरांशग्रहन्यासाः। एषाम् अन्यतमेन द्वाभ्याम् बहुभिर्वापि लक्षणै र्विक्रियाम् उपगता न्यासवर्जं विकृतसंज्ञा भवन्ति।"

Bh. N. S. 28, 46.

10 "अथ न्यासाः। एकविंशतिविधो ह्यंगसमाप्तौ।"

Ibid, 28, 81.

But, the full aesthetic significance of Nyāsa would be realised only when the note to be used as the Nyāsa could be in any position in the Mode-octave and have any relationship with the Mode-initial. That stage was not reached in the Jāti period.

(3). Apanyāsa :

The need for co-ordination of different parts or sections of a melodic composition came to be perceived clearly in this period. In the definition of Amsa we find that there were four sections in the musical compositions of the time and the concluding notes of these sections were called Nyāsa, Apanyāsa Vinyāsa and Sanyāsa. These had to be selected from amongst the Amsas. Of these four sections the only two which determined the character of a Jāti were those which concluded with the Nyāsa and the Apanyāsa, as only these two were included in the list of features of a Jāti. The last two, which were the most important sections, responded to each other by means of their concluding notes. One particular Amsa of a Jāti had to be used as its Nyāsa. Any one of the other two Amsas might be used as the Apanyāsa. The number of Apanyāsas for the twenty-one Jātis must, therefore, have originally been forty-two. But, it appears that subsequently the fourteen Vikrita Jātis were allowed to have the same Amsa both as the Nyāsa and the Apanyāsa. The total number of Apanyāsas thus became fifty-six (42+14=56).

(4). Mandra :

This word was used in the Jāti period in a sense which was quite different from its modern implication. It indicated the lowest note of the Mode used in a Jāti. The importance of fixing the lowest limit of the octave used in a musical composition appears to have been perceived. In the Shuddha Jātis the Nyāsa only could be used as the Mandra. This rule was, however, relaxed in the case of Vikrita *Jatis.*[11] Three notes viz., the Amsa (i. e. the Vadi), the Nyāsa and the Apanyāsa,

11 "न्यासविधावप्यासां मन्द्रो नियमाद् भवति शुद्धासु, विकृतास्वनियमात् ।"

were permitted to be used as the Mandra in these.[12] That is to say, anyone of the three Amsas might be used as the Mandra of a Vikrita Jāti. Only three Modes with the Amsas as the Initial Notes were thus made possible for each Vikrita Jāti. The idea of Murchhanā, which implies the possibility of any note of a Scale being treated as the initial of the octave used for musical composition had not yet come into existence. The word "Mandra" which was originally used to denote the initial note of a Jāti subsequently came to signify the Initial Note of a Murchhanā. That is the definition of the word given by Shārngadeva, who always used it to indicate the Murchhanā of a Rāga of his time.

(5). Shādāva and Auduva :

The word "Shādava", which indicated a single hexatonic mode in the Grāma period, came to signify hexatonic forms of all Scales in the Jāti period. Another form came into existence in this period, wherein two of the notes of the Scales were omitted. It was called Auduva. Most of the Jātis were used in two forms, one hexatonic and the other pentatonic. The necessity and importance of omitting one or two particular notes of a Scale were now clearly perceived. That the significance of omitting these notes was instinctively realized is shown from the facts that the note omitted in the hexatonic form was also omitted in the pentatonic form of a Mode and that the two omitted notes were invariably placed a Fourth or a Fifth from each other. Shādava and Auduva have been counted as two separate features of a Jāti. But, as a Jāti cannot, in a particular composition, be both Shādava and Auduva at the same time, they should be taken as one feature. The proper word for the feature should be "Varjita Svara" (omitted note).

The remaining four of the ten feature of Jāti are not important enough to be counted as real features. As *Graha* was always identical with the Amsa (Vādî) it need not be counted as a separate feature. There was no fixed rule about Tāra or the highest note used in a Jāti. Bahutva (frequency) and

12 "त्रिविधा मन्द्रगतिः। अंशपरा न्यासपरा अपन्यासपरा चेति।"

Alpatva (sparseness) need not be considered as true features of a Jāti ; for it is laid down that only the Amsa and other strong notes of the Jāti could be used *frequently*.[13] It was enough if these notes were known for certain. The true features of a Jāti were, therefore, only five as enumerated above.

(g). Mandra acquires the significance of Murchhanā : All these five features of a Jāti are to be found in a modern Rāga. Still they differ widely from each other. There are two main reasons for this difference. First, none of the features of a Jāti except the Nyāsa was fixed in character, each having two or three alternatives. Secondly, some other important features required for completing the conception of Rāga were not to be found in the Jātis. There is no doubt that Rāgas were the natural outcome of a gradual process of evolution in which Jātis represented an earlier stage. That process took several centuries for reaching the ultimate stage. The features of Jātis were gradually developed during these intervening centuries. The most important development in this period was the introduction of Murchhanās. The idea of Murchhanā had its origin in the Mandras of the Jātis. The Mandras of the seven Shuddha Jātis, which were identical with their Nyāsas, i.e., the seven notes of the gamut, had an apparent likeness with the initials of seven Murchhanās. But, these seven Jātis were not Murchhanās ; because, they belonged to different Scales. The idea underlying Murchhanās is the possibility of any note of a particular Scale being used as the initial of the octave to be made the basis of a melodic composition. Some advance towards this idea was, as noted above, made in the Vikrita Jātis by allowing only the three Amsas to be used as their Mandras. This restriction was ultimately removed when it was discovered that each of the seven species of octave of a single Scale starting with its seven notes, used as the basis of a melodic composition, gives it a distinctive colour. By the removal of this restriction a Jāti could have seven Mandras

13 "संचारोऽंशवलस्थानाम् ।"

"Bh. N. S, 28, 83.

instead of three. A Mandra now came to have the significance of a real Murchhanā. Subsequently, the word Mandra was used for denoting the Initial of a Murchhanā.

(h). Shādava and Auduva Tānas of Murchhanās : Hitherto each Jāti had only one hexatonic and one pentatonic form. As soon as the æsthetic value of the Murchhanās was realized it was found that each Murchhanā of a Grāma could have more than one hexatonic or pentatonic form. A scheme was needed at this stage, which would contain all the possible transilient forms of the Murchhanās of the Grāmas. Such a scheme is to be found in the first part of the twenty-eighth chapter of the Nātya Shāstra[14]. In this scheme fourteen Murchhanās have been distinguished by special names. Seven of these start from the seven notes of Shadja Grāma and the other seven from those of the Madhyama Grāma. Each of these Murchhanās could be made Sādhārana (Sādhārana-Krita) by sharpening its Gāndhāra and Nishāda by two Shrutis. These chromatic notes were called Antara and Kākalî respectively. This process completely altered the tonality of the original Scale to which the Murchhanā belonged, as shown in a preceding chapter. Four distinct Scales which correspond with the first four Primary Scales thus emerged from this process. These were :—

		Amsas
1.	**Madhyama Grāma**— Primary First Scale	M,N,R
2.	**Shadja Grāma**— — Primary Second Scale	S,M,D
3.	**Sādhārana-Krita Madhyama Grāma**—Primary Third Scale	R,M,D
4.	**Sādhārana-Krita Shadja Grāma**— — Primary Fourth Scale	S,G,D

14. It is a rather bewildering fact that this scheme has found place in the same chapter in which the decadent Jātis have been described, though it is quite evident from internal evidence that the former belonged to a much later period. This is one of several instances of re-handling which the Nātya Shāstra has undergone.

The actual number of Murchhanās was, therefore, not fourteen but twenty-eight, each of the four distinct Scales having seven Murchhanās.

The Sādhārana-Krita and the original Murchhanās were, however, counted as one Murchhanā and called by the same name[15]. Each of the fourteen Murchhanās had its Shādava (hexatonic) and Auduva (pentatonic) Tānas. There were altogether eighty-four Tānas, including fortynine Shādava and thirty-five Auduva Tānas. Some palpable mistakes and miscalculations have been made in arriving at these numbers, as shown in the chapter on early history in which the scheme has been fully discussed. In spite of its short-comings the scheme appears to have been the product of an almost unfaltering musical instinct and may be considered as a near approach to a scientific scheme[16]. The correct number of Tānas should be eighty-eight, including forty-eight Shādava and forty Auduva Tānas. Each of the two Grāmas and their Sādhārana-krita forms have twelve Shādava and ten Auduva Tānas.

The most serious defect of this scheme is that it does not mention separately the omissible notes of the Sādhārana-Krita forms. Probabaly, these were orally transmitted to the students of music.

(i). Murchhanās accelerate the process of individualization : Notwithstanding these defects the Murchhanā scheme gave a fresh impetus to the advancement of musical ideas which was destined to culminate in the conception of Rāga. The first effect was a new aesthetic significance of the Nyāsa and the Apanyāsa, which could now hold any position and have all possible relationships with the initial note of the octave used in a melody. Then again, the rules of a Jāti could henceforth be applied to six Shādava and five Auduva

15. This failure to keep them distinct became the cause of subsequent ruin of this valuable scheme.

16. The mistakes may be attributed to later unintelligent scribes, who failed to understand the principles underlying the scheme.

Murchhanās of the Scale on which the Jāti was based. Though each Jāti had a special character which made it distinguishable from other Jātis, there is no doubt that this was a class character, as a Jāti might have more than one Mandra or Amsa or Apanyāsa, the only constant feature being the Nyāsa. The more the peculiar flavour which every Tāna of a Scale possessed came to be appreciated the more the class character of a Jāti was removed and the more the process of individualization of melodic forms of Jātis was accelerated.

(j). Mārga Rāgas akin to individualized Jātis : With the advance of this process the conception of Rāga approached its final stages of maturity. Ultimately, a melodic form consisting of two or more sections based on a particular Murchhanā, either Sampurna or Shādava or Auduva, of a particular Grāma, and having particular notes for their Amsa and Nyāsa or Apanyāsa, was perceived to possess such definite character that made it clearly distinguishable from other melodic forms of similar structure. These individualized melodic forms of Jātis had the semblance of modern Rāgas and presumably the earliest Mārga Rāgas partook much of their character. These Rāgas, however, had not yet reached the perfect conception of a modern Rāga.

(k). Yāstika and Matanga ; Rāga, Bhāshā and Anga : It is difficult to state definitely the period when these melodic forms came to be called Rāgas. The earliest mention of Rāgas appears to have been made in the works of Yāstika and Matanga, authors profusely quoted by Shārngadeva, who belonged to the first half of the thirteenth century (1210-1247 A.D.). The Rāgas of the time of Yāstika and Matanga had became obsolete at the time of Shārngadeva. Assuming that it took at least one century for the Rāgas of the time of the said two authors to have reached their state of maturity and another century to be gradually forgotten we may take the tenth century to be the approximate period when the Rāgas first came into existence. The word "Rāga", however, was not originally applied to all melodic forms. Of the two hundred and sixty-four melodic Types named by Shārngadeva only fifty-eight were called Rāgas.

Of the remaining Types one hundred and twenty were called Bhāshas and eighty-six were called Angas. So, less than one-fourth of the total number of Types were called Rāgas. Subsequently, the name came to be applied to all the Types, as is evident from the following passage of Sangîta Ratnākara :

"रंजनाद् रागता भाषांगादेरपीष्यते ।"

"On account of their pleasing character Bhāshas, Angas and others are also to be called Rāgas."

S. R. II. 2, 2.

It is a remarkable fact that only some of the Angas survived at the time of Shārngadeva. These Angas were divided into four classes, viz., Rāgānga, Bhāshānga, Kriyānga and Upānga. Rāgāngas are said to be derived from Rāgas and Bhāshāngas from Bhāshās.

(1). Mārga and Deshî : About these four classes of Angas Shārngadeva makes the following observation :—

"देशीरागतया प्रोक्तं रागांगादिचतुष्टयम् ।"

"The four (classes) called Rānganga and others are said to be Deshî Rāgas".

S. R. II, 2, 3.

The Angas were known as Deshî as distinguished from the older classes of Types, which were characterized as Mārga. The two kinds of Types are defined as follows :—

"मार्गो देशीति तद् द्वेधा तत्र मार्गः स उच्यते ।
यो मार्गितो विरिंच्याद्यैः प्रयुक्तो भरतादिभिः ॥
*** *** ***
देशे देशे जनानां यद् रुच्या हृदयरंजकम् ।
गानं च वादनं नृत्यं तद् देशीत्यभिधीयते ॥"

"That (music) is of two kinds : Mārga and Deshî. That is called Mārga which is sought after by Brahmā and others, and which was promulgated by Bharata and others. ** ** Songs, instrumental music and dance, which please the heart according to taste in different countries are called Deshî."

S. B. I. 22.-23

It appears from the above passages that the ancient art-music which was promulgated by great masters like Bharata came within the category of Mārga music. Evidently, the Jāti system was included in this category. The character of Deshî Rāgas is thus described by Ānjaneya (Hanumān):

"येषां श्रुति-स्वर ग्राम-जात्यादि-नियमो न हि ।
नाना देश-गति-च्छाया देशीरागास् तु ते स्मृताः ॥"

"Those, wherein the rules of Shruti, Svara, Grāma, Jāti and others are not applicable and which bear the impress of different countries, are called Deshî Rāgas".

Kallinātha's Commentary on S. R. II, 3, 131.

It is clear from this passage that Deshî Rāgas did not conform to the rules of art laid down by the ancient masters of music. In other words, these included only those popular songs which were beyond the pale of art-music. Shārngadeva tells us that all the Rāgas of his time, which belonged to the Anga class, were Deshî. He goes further and says :—

"प्रसिद्धा ग्रामरागाद्या केचिद् देशीत्यपीरिताः"

"Some of the famous Grāma Rāgas and others are also said to be Deshî." S. R. II, 2, 3.

The treatise on Rāgas written by Matanga is entitled "Vrihaddeshî" (great Deshî), *i.e.* to say, the great book on Deshî Rāgas. This shows that all Rāgas dealt with by him, including even the Grāma Rāgas were considered by him to be Deshî.

(m). Deshî raised to the status of Mārga : All these evidences seem to point to the conclusion that the great ancient art-music, Mārga Sangîta as it was called, was totally abandoned in favour of popular (Deshî) songs. This paradox is very cleverly solved for us by Kallinātha, the great commentator of Shārngadeva's Sangîta Ratnākara, in the following passage :

"नियमे तु सति तेषां गीतादीनां मार्गत्वम् एव ।"

"When these (Deshî) songs etc., conform to rules, they surely become Mārga."

Commentary on S. R. II, 3, 161.

It is thus evident that these later Rāgas, though they went by the name "Deshî", were actually raised to the status of Mārga, by making them conform to the rules of art, i.e. to say, those of Shruti, Svara, Grāma, Jāti etc., which they did not originally conform to, as seen in a passage quoted above. These new Mārga-made Deshî Rāgas undoubtedly ousted the whole body of ancient Mārga by virtue of their superior aesthetic value. Orthodox artists all over the world are well-known for their disdainful attitude towards folk-music. Admission of folk songs into the orthodox fold and their assimilation with the Mārga system can be accounted for only by the pressure of popular verdict in favour of these songs, which evidently possessed some elements of real *beauty*[17]. It was in fact these very elements of Deshî songs which were destined to bring the conception of Rāga to perfection.

It has been pointed out in the chapter on structure of Scales that melody had its origin in short phrases of a few notes combined in different ways according to the racial characteristics of different peoples. Melody in the true sense of the term came into being only when two or more such phrases came to be combined in some sort of pattern. Of various patterns of this kind those in which the opening phrase was repeated at the conclusion were found to be most satisfactory, as both instinct and reason are gratified by a connection between the beginning and the end[18]. With the development of melodic ideas two or more other phrases of an auxiliary character were added to the pattern for the sake of variety and elaboration. Folk-songs all over the world are more or less of this character.

(n). **Phrases of outstanding beauty belonging to Deshî melodies completed the process of individualization :** Soon after Mārga Rāgas took shape as direct off'springs of Jātis,

17 In Europe too the influence of folk-songs on the popular mind was vigorously resisted by the church ; and folk-songs and church-songs long strove together for popularity. Church song had ultimately to borrow musical elements from its rival especially for the hymns.

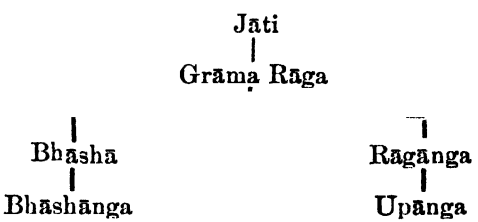
18 Vide Encyclopoedia Brittanica, art. "Song".

musical artists of India found it impossible to resist the popular demand for inclusion in the orthodox system of those Deshî Rāgas which contained phrases of outstanding beauty. They soon discovered that the acceptance of these Rāgas, far from spoiling their art, would really enrich it, if they could be made to conform to its rules. They had only to find out the Grāma and the Murchhanā of the popular song and to adapt it to some existing melodic form based on them. The resulting Mārga-Deshî Rāga was found to possess a unique individuality, which the original Mārga Rāga lacked. This individuality was brought about by the concluding phrases of the popular songs which were easily recognisable on account of their peculiar flavour. These beautiful characteristic phrases borrowed from Deshî songs and combined with the main features of Jātis completed the process of individualisation.

The proces of affiliation and assimiliation of Deshî melodies appears to have begun at the time of the Bhāshās. Many of these Bhāshās are named after different parts of the country, e.g. Saubîrî, Gāndhārî, Kāmbojî, Saindhavî, Saurāshtrî and so on. It is noticeable that these names are all in the feminine gender, in contrast with those of the Grāma Rāgas, which were all of masculine gender. They were not permitted to have the honour of being called by the name Rāga and the feminine gender was perhaps intended to show their inferiority in position[19].

19. Many of these Bhāshās were subsequently renamed 'Rāginîs' by musicians of Northern India and conceived as wives of Rāgas. The tradition of six Grāma Rāgas (Shat-Grāma-Rāga) mentioned in Harivamsa led some writers on music to conceive six of the well-known Rāgas as demi-gods and to wed each of them to five or six demi-goddesses called Rāginîs. These connections were quite fanciful, as no uniform principle can be found in them, different authors making different connections between the same Rāgas and Rāginîs. As classifications of Types, therefore, these schemes possess no value or practical utility. Such schemes are not to be found in Southern India, though some names of Types are also found there to be of feminine gender. They must have been taken from the Bhāshās. The word Rāga is, however, uniformly applied to all Types in

(o). Yāshtika's method of affiliation and classification : Yāshtika selected fifteen out of thirty ancient Grāma Rāgas and eight Upa-Rāgas, and affiliated all the Bhāshās to one or other of these Mārga-Rāgas. The largest number of Types came within this class. Only about a dozen of these survived at the time of Shārngadeva. The class of Types called Angas came into existence after the Bhāshās. Of the four Kinds of Angas the Rāgāngas were affiliated to Grāma Rāgas, Bhāshāngas to Bhāshās and Upāngas to Rāgāngas. The connection of Kriyāngas to any other Type is not mentioned by Shārngadeva. Of sixty-eight Angas, fifty-two survived at the time of Shārngadeva. Most of the Grāma Rāgas had become obsolete. Instead of these, twenty Deshî Rāgas are said to have come into existence at the time. Some of these were affiliated directly with the Jātis like the ancient Grāma Rāgas. The object of all these affiliations evidently was to trace their origin from the Mārga Rāgas and ultimately from the Jātis. The lineage of Deshî Types may be shown by the following tree :



The names of some of the Grāma Rāgas and Deshî Rāgas are still to be found amongst modern Rāgas. For example, Hindola, Kakubha and Mālava-Kaishika (Mālkaus) of the Grāma Rāgas ; Gaudî, Gurjarî, Lalitā, Gāndhārî and others of the Bhāshās ; Shankarābharana, Todî, Vasanta, Bhairava, and others of the Rāgāngas ; Āsāvarî, Velāvalî and Natta of the Bhāshāngas ; and Bhairavî and Chhāyānatta of the Upāngas. Of the twenty later Deshî Rāgas mentioned by

Southern India. It thus appears that the real cause for using feminine gender in the names of Bhāshās was never understood, as it was never explained by the originators of those names.

Shārngadeva, Shrî-Raga, Megha, Kāmoda, Deshākhya and Natta-Nārāyana are still to be found amongst modern Rāgas. But, it is impossible to say whether all of the modern Rāgas are identical in character with the old Rāgas of the same names. Only a few of them can possibly be identified.

The principle underlying the aforesaid affiliations is mentioned nowhere. It may be assumed that some common features were made the basis of such affiliations. What these features were there is no means of ascertaining. But, that in many cases these affiliations were far-fetched and fictitious can be clearly seen from the descriptions of even the Grāma Rāgas given by Shārngadeva. Thus, we find that some of these Grāma Rāgas are said to be derived from two or three Jātis, which is quite inconceivable. However that may be, it is clear that the sole object of these affiliations was to make the rules of Jāti applicable to Deshî Rāgas and thus raise them to the status of Marga-Rāgas. This process of raising (unnayana) went on from age to age, as will appear from the following statement of Venkateshwara Dîkshit, the famous theorist of Southern India, belonging to the seventeenth century A. D. :—

'एवम्प्रकारेणोन्नेया रागा देश-समुद्भवाः"

"Rāgas, which have their origin in countries, are to be raised in this way."

Chaturdandi Prakāshika V, 108.

This author claims to have himself raised in this way the Rāga Simharāva.

(p). Dāmodara's method of affiliation and classification :

The aforesaid method of raising Deshî Rāgas by means of affiliation appears to have been abandoned in the fourteenth century. Dāmodara, an author belonging to that century, who quotes in this Sangîta Darpana profusely from Shārngadeva's book, makes no reference to either Jātis or the Grāma Rāgas. He follows the simple and rational method of finding out the Grāma, the Murchhana, the omitted notes, the Graha, the Amsa and

the Nyāsa of a Rāga. The custom of classifying Types into Rāgas and Rāginîs had come into vogue before his time. He mentions three different views regarding the classification of Rāgas, viz. Shiva Mata, Rāgārnava Mata and Hanumat Mata. Of these the view of Rāgārnava appears to be the oldest, as there are no Rāginîs in that scheme, there being five dependent (āshrita) Rāgas for each of the main six Rāgas. The author accepts the scheme of Hanumat, in which the six male Rāgas are Bhairava, Mālava-Kaishika, Hindola, Deepaka, Shrî Rāga and Megha Rāga. Of these Mālava-Kaishika and Hindola are names found amongst Grāma Rāgas ; Shrî-Rāga and Megha Rāga were included in the twenty Deshî Rāgas mentioned by Shārngadeva ; and Bhairava was a Rāganga of Grāma Rāga Bhinna-Shadja. It is interesting to note that Rāginî Bhairavî, one of the five wives of Rāga Bhairava, was originally an Upānga of Rāgānga Bhairava. We thus find that the old ideas had changed thoroughly giving place to new ideas about the affiliation of Types.

(q). Inadequacy of old methods ; introduction of the Mela system : All these Rāgas and Rāginîs were found by Dāmodara to be based on the Murchhanās of the two ancient Grāmas. No difficulty was experienced so long as the Deshî Rāgas could be based on the Murchhanās of the existing Grāmas, which were Primary Scales. But, further progress towards assimilation was retarded when Deshî Rāgas belonging to Scales other than Primary Scales were encountered. This difficulty and also the inconveniences of the common-Tonic forms of Murchhanās referred to in the seventh chapter on Modes led to a thorough change of the whole system, which was almost revolutionary. When popular Deshî Ragas based on Secondary and Chromatic Scales were sought to be included in the orthodox system, it was found that they could not be expressed by means of the existing notes. A scheme containing more than the nine ancient notes was needed for that purpose. The next five centuries witnessed various attempts made by different musical theorists at expressing Deshî Rāgas by means of schemes of their own. Each of these schemes con-

tained twelve notes including seven Shuddha and five Vikrita notes and two to four extraordinary notes coincident with some of the ordinary notes. By various combinations of notes included in these schemes the theorists formed what they called Samsthānas or Melas. Each of these Melas was named after one of the several Deshî Rāgas, which were based on it, and introduced into the Mārga system. In the Northern School these reforms were made at different times by Lochana, Vitthala and Ahobala. The total number of Melas described by them is twenty-six, of which six represent Primary, seven Secondary and thirteen Chromatic Modes. The authors who brought about these reforms in the Southern School were Rāmāmātya, Vitthala, Pundarîka, Somanātha, Venkateshwara and Tulajendra. The total number of Melas formed by them is thirty, of which six represent Primary, eight Secondary and sixteen Chromatic Modes.

The Melas formed by these medieval theorists of both the schools taken together make the grand total of thirty-five, including six Primary, ten Secondary and ninteen Chromatic Melas. Many of these Melas have been lost, while some new Melas have been added in modern music. The Northern System has lost twelve and acquired eleven Melas, including one Primary, one Secondary and nine Chromatic Melas. The Southern System has lost five and acquired twelve Melas, including four Secondary and eight Chromatic Melas. All these Melas and the schemes of notes on which they are based have been fully explained in the three preceding chapters.

It will thus be seen that many Secondary and Chromatic Melas came into use in Indian music since the middle ages. As only Primary Scales were known in ancient India, all the Rāgas based on this large number of Secondary and Chromatic Melas must have been acquired from Deshî music.

(r). The distinctive phrases of Deshî Rāgas perfected the conception of a modern Rāga : These Deshî Rāgas were distinguishable from each other by means of their distinctive phrases. But, unfortunately, these phrases have never

been recorded by writers on music except Ahobala. Such a phrase Ahobala calls "Udgrāha-Kāraka-Tāna", as it was invariably placed at the beginning of a melodic composition. He says :—

'आदावुद्गृह्यते येन स तानोद्गाहकारकः।

"As it is taken up at the beginning it is called Udgrāha-Kārāka-Tāna".

In modern Hindusthānî music the main characteristic phrase is likewise almost invariably placed at the beginning of a melodic composition. The conclusion is also made with this phrase. This arrangement of phrases is most satisfactory, as it gratifies both instinct and reason by connecting the end with the beginning. These distinctive phrases, without which Rāgas could not have maintained their separate existence and individuality, perfected the conception of a modern Rāga. They were transmitted orally from generation to generation. This is one of the reasons why many good old Rāgas have been either lost or have totally changed their character. Quite recently attempts have been made to record the characteristic phrases of Rāgas, which are in Hindusthānî music called 'Pākad" (catch phrases) and in Cārnātic music "Pidippu".[10] In describing a Rāga the medieval writers mentioned the Mela instead of Grāma and Murchhanā, which were unknown to them. Of the Jāti features they mentioned the omitted notes, the Graha, the Amsa and the Nyāsa. Most of these writers, however, give the same note as Graha, Amsa and Nyāsa, which they call "Trika" or "Traya" (the three). Ahobala is perhaps the only writer who gives in many cases different notes as Amsa and Nyāsa, thus showing a superior musical sense. Most of modern writers on Hindusthanî music mention the

10. A very laudable attempt has been made in this direction in Hindusthānî Sangîta Paddhati, Kramika Pustaka Mālikā Series. But, we do not think these attempts have been quite successful, as proper attention has not been paid to the Amsas and Nyāsas of these phrases. Rev. H. A. Popley has also made a similar attempt in some Cārnātic Rāgas in his book "The Music of India."

Vādî and the Sāmvādî of a Rāga instead of Amsa and Nyāsa. They invariably give different notes as Vādi and Samvādî.

One important Jāti feature, which has long ceased to have attracted notice, is the Apanyāsa. Shārngadeva mentions the Apanyāsa of only a few of the Rāgas described by him. Since then the importance of this feature appears to have been lost sight of. It will be seen in the next chapter that the Apanyāsa is as important as the Nyāsa for melodic response and co-ordination of phrases.

CHAPTER XIII.

CHARACTER OF RĀGAS.

The character of the Types which are the principal constituents of the Melodic system of Hindusthani music cannot be fully understood without a true appreciation of the especial features which characterize them and make them clearly distinguishable from the melodic forms of all other systems of music. These have, therefore, to be elucidated on the basis of the scientific and æsthetic principles laid down in the preceding chapters. The main features of these Types are seven in number.

A. THE SEVEN CHARACTERISTIC FEATURES (LAKSHANAS).

The individualistic character of a Rāga which marks it out from other Rāgas in various compositions differing widely in style, rhythm and time-measure is attributable to certain characteristic features which distinguish Rāgas from one another. These features developed, as we have seen, by a process of historical evolution through several centuries. Most of the main features of Rāgas were derived from the ancient Jātis and medieval popular songs. The essential features of Jātis have been shewn in the last preceding chapter to be five in number, viz., Mandra, Amsa, Varjita Svara, Nyāsa and Apanyāsa. Of these, Mandra has to be replaced by Murchhanā, which marked a further stage of development. Another feature, viz, Grāma, which is inherent in the idea of a Murchhanā and is, in fact, its basis, has to be added. The most important feature of folk-music of different localities, which accrued last to the conception of a Rāga and gave it final perfection, is Vishishta Tāna or characteristic phrase. We thus get altogether seven features

which characterize a modern Rāga. These are stated below in the order in which they have to be dealt with :

1. **Grāma**
2. **Murchhanā**
3. **Amsas**
4. **Varjita Svaras**
5. **Nyāsa**
6. **Apanyāsa**
7. **Vishishta Tānas**

The scientific basis of the first four items has been shown in some preceding chapters. Their relation to Rāgas and the æsthetic significance of these and the other three items as features of Rāgas, which must be understood in order to have a true appreciation of the character of Rāgas, are elucidated below in the order shown above.

1. GRĀMA.

It has been shown in the fourth chapter that Grāmas or Scales on which all melodies worth the name must be based, are constructed on strictly scientific principles. The seven notes of which each of these Scales is composed are linked to each other by bonds of consonant relationships. These relationships are brought to play in three different ways according to the composite, the bicentric and the continuously consonant aspects of a Scale. Each of the other features of a Rāga is based of one of these aspects of the Scale which gives rise to the Rāga Grāma is therefore, the most important feature of a Rāga from the scientific point of view. The structure of the Scale, on which a Rāga is based, is the greatest factor in determining its character, as the relationships of notes of one Scale are different from those of all others. The differences of these relationships are more marked in Scales belonging to different Groups than in Scales belonging to the same Group. The most prominent difference is to be found between. Scales belonging to the Simple and the Chromatic classes. The especial feature of the Chromatic class, which is peculiar to India, is that these contain Double Thirds and Sixths, which are difficult to sing for musicians of average musical faculty. It is owing to this difficulty that Modes of many Chromatic Scales of the medieval period have been

lost to modern music. That difficulty is caused by the fact that the melodic rule, according to which every third note must be consonant, and which is followed in all other classes of Scales, is not followed in this class. Thus, for example, we find such progression in a Chromatic Scale : as— Sa Go Ga Ma Here Ma the third note after Go, is dissonant to it. But, the beauty of the progression, instead of being spoilt, is rather enhanced by the fact that three notes, which are gradually more and more consonant to the starting note, follow closely one after another and give a special flavour to a Chromatic Scale.

There are, as seen in the fifth and the sixth chapters, altogether twenty Scales, of which ten belong to the Simple and ten to the Chromatic class. Each of these classes is divided into two Groups of five, which are distinguished as Group A and B. The two Groups of Simple Scales have been also termed Primary and Secondary. Modern books on musical theory mention the Melas of Rāgas, but give us no information about the Grāmas. The particular Scale to which a Chromatic Mela belongs can be easily ascertained from its structure. The numbers of the Scales of all Chromatic Melas have been given in the chapters on Melas. Certain rules have been laid down in the ninth chapter for ascertaining the Group of Scales to which a Mela belongs. But, it is not possible to ascertain the number of the Scale to which a Primary Mela belongs, because Primary Scales are similar to each other. The numbers of these Scales can, as will be seen below, be ascertained from the Amsas or the Varjita Svaras, if any of these features is known.

In ancient times the first four Primary Scales only were in use and the difference of their structure was almost correctly expressed by means of Shrutis. With the introduction of Chromatic Scales the ancient theory of Scales beeme useless and Scales came to be represented by means of Melas, which though nominally expressed by means of Shrutis, were in reality based on twelve notes of an equally tempered Scale. This Semitonic system is, as already pointed out, very useful for ordinary purposes, specially for beginners. But, to

understand properly the difference in the relationships of notes in different Scales we must divide the octave into fifty-three equal parts. The ancient custom of dividing the octave into twenty-two Shrutis is not, as shewn in third chapter, quite adequate for that purpose. For an advanced study of music, Scales must be expressed by means of what have been termed Anushrutis or Nonatones. Relationships of notes have, therefore, been shown by means of Anushrutis throughout this treatise.

2. MURCHHANĀ.

Every Grāma has seven Murchhanās, which start from the seven notes of that Grāma. They are only different species of octave of the Grāma. From the scientific point of view, therefore, the Murchhanās of a particular Grāma are indistinguishable from each other. That is the reason why they have eluded the notice of most theorists and musicians all over the world. They are, nevertheless, of great æsthetic importance to the melodic art. This was realized by theorists of India since the most ancient times. In their rudimentary stage they were partially represented by the Mandras of the Jātis. They were fully developed in the later Rāga period, in which they were recognized to be one of the most essential features of Rāgas. The æsthetic significance of a Murchhanā is derived mainly from the fact that the Tonics and the other notes of the Scale to which it belongs appear in relationships which are different from those of the other Murchhanās of the Scale owing to the inverted positions of some of the notes. This accidental distinction of octaves of the same Scale has been called *Modality* as distinguished from the essential difference of Scales, which is known as *Tonality*. It has been seen in the chapter on Modes that distinction among Murchhanās of a Grāma is effected by three kinds of alterations in the relative positions of notes :

(1) Inversion of positions of the Tonics in relation to the Mode-Initial, (2) inversion of positions of Tonics in relation to each other, and (3) inversion of positions of the other notes in relation to the Tonics. As most of the Scales are bicentric in character, mention was made in the chapter on Modes of

only two centres, the Lower and the Upper Tonics, and it was shown that in some of the Modes they appear as fifths and in others as fourths from each other. There are, however, some Scales, in which the Mediant, *i.e.* to say, the note which is third above the Lower and third below Upper Tonic, can also be considered as the third Tonic and called the Middle Tonic. In some Modes of these Scales this Tonic appears as a Sixth above or below one of the other two Tonics. These Modes are remarkable as they contain Perfect Hexachords which are very rare.

The most important distinction among Murchhanās of the same Grāma or among those of different Grāmas, is that some of them contain Trichordal, others Tetrachordal or Pentachordal or Hexachordal Unitary Scales. These Unitary Scales are the bases of the most important feature of Rāgas, viz. the Vishishta Tānas. Trichordal Unitary Scales occur in Modes of Chromatic Scales only. Rāgas Lalita, and Pāschātya and Prāchya Vasantas are instances of the use of these Unitary Scales. The other Unitary Scales may be either Primary or Secondary or Chromatic. These different Unitary Scales give distinctive colours to the phrases which characterise different Rāgas.

A Mode may have two forms, viz.. Common-Tonic and Common-Initial. Modes in their Common-Tonic forms are apt to be confused with each other as their notes are indistinguishable. This was the state of things in ancient Indian music and continued till the Vikrita notes were devised in the medieval period and Murchanās came to be distinguished from each other by means of Melas having different Vikrita notes. These Melas would be useless and misleading unless they are regarded as Murchhanās with Sa as their Common Initial ; and a Rāga must be confined within the octave of this Initial. It is, however, sometimes observed that a Rāga is based on a different octave. In such a case the Mela must be considered to be wrong and corrected by making Sa the Initial note. The customary Melas of Rāgas, Mālkaus, Bhupālî, Sohinî, Puriyā and Pāschātya Vasanta are instances of such wrong uses.

The purpose of the Key-system of European music is usually belived to be to have music at different pitches. Such use of Keys has no æsthetic significance and is of little account from the artistic point of view. There are, however, some musical scholars who hold that the keys are also intended for modal distinctions.[1] It is quite possible to view some of the

1. In a foot-note of the chapter on Modes we have quoted the opinion of Charles W. Pearce, Mus. D., about the modal significance of Keys. Two different systems each based on seven different Keys and having different notes as common initials, can represent the Modes of Primary Scales. One of these systems would have 'C' for its common initial and contain the natural Key, five flat Keys and one Sharp Key. This may be called the Flat System. The other would have 'E' for its common initial and contain the natural Key, five sharp Keys and one flat Key. This may be termed the Sharp System. Either of these systems can be used for expressing the seven Modes of the Major or the Minor Scale (Melodic). The two systems are shown below. The figures within brackets by the sides of the Key-notes are the numbers of the Modes of their respective Scales. The so-called Key-notes are the Lower Tonics, their Fifths, i.e. the Dominants, being the Upper Tonics.

The Flat System of Modes with C as common initial.

Major Key	*Signature*	*Minor Key*
(1) C	×	A (3)
(5) F	B♭	D (7)
(2) B♭	B♭ E♭	G (4)
(6) E♭	B♭ E♭ A♭	C (1)
(3) A♭	B♭ E♭ A♭ D♭	F (5)
(7) D♭	B♭ E♭ A♭ D♭ G♭	B♭ (2)
(4) F	F♯	E (6)

The Sharp System of Modes with E as common initial.

Major Key	*Signature*	*Minor Key*
(3) C	×	A (5)
(6) G	F♯	E (1)
(2) D	F♯ C♯	B (4)
(5) A	F♯ C♯ G♯	F♯ (7)
(1) E	F♯ C♯ G♯ D♯	C♯ (3)
(4) B	F♯ C♯ G♯ D♯ A♯	G♯ (6)
(7) F	B♭	D (2)

Keys in that light ; and they may be made to represnt different Modes. For that purpose these Keys must start from a com-

These Modal Key-signatures are analogous to the Mela-Signatures of India.

The difficulty with regard to these Modes based on Keys is that the notes of these Modes are fixed in pitch. Notes of fixed pitch are unsuitable for the modal system, which is primarily meant for melodic vocal music, whereas the Keys of fixed pitch are intended for harmonic instrumental music. The Tonic Solfa system was introduced for the purpose of writing music suitable for different registers of human voice The seven notes of the gamut are called in this system Doh, Ray, Me, Fah, Soh, Lah and Te. The Tonic-Solfaists have what they call "movable Doh" instead of C of fixed pitch. The notes of this system not being fixed in pitch can be used for expressing the above-mentioned Modes without creating any practical difficulty. For this purpose the seven natural notes D, R, M, F, S, L and T, the five flat notes Ra, Ma, Sa, La and Ta and the five sharp notes De, Re, Fe, Se and Le may be substituted for corresponding notes of fixed pitch given above. The common initial for Modes of the flat system would be D and that for Modes of the sharp system M, instead of C and E respectively of the fixed pitch.

Art-song of modern Europe is based on only the Major and Minor Scales which represent the Primary First and Fourth Scales. The First and the Fifth Modes of the first four Primary Scales were used in the ecclesiastical music of medieval Europe. The modern harmonic system of Europe based on the aforesaid two Scales has supplanted these Ecclesiastical Modes. Some of these Modes are still used in the popular music of some parts of Europe ; but they are gradually becoming extinct by the pressure of the harmonic system. The following statement regarding this modern tendency is found in "The Standard Course." by John Curwen (sixth edition, 1901, p. 70) :—

"Much of the old music of Scotland, Ireland, Wales and England, cannot be written as still traditionally sung, except by the use of these modes ; and when (as in the case of "Martyrs" in Scotland, "Bangor" in Wales and other well-known tunes) some musical men, seeking to be wiser than Bach and Handel (who recognized the modes), *altered the melody to suit the supposed requirements of modern harmony*, and printed these altered melodies, the consequence was that people either ceased to use the tune or continued to sing it differently from the printed copy". (The italics are ours).

The writer draws the attention of his readers to the fact that there is living modern music based on these very Modes in

mon initial note and melodies must be confined within the octave of that note at least in the main theme. Such melodies will have some semblance with Rāga music. They will yet be far removed from Rāga melodies unless the other important features are added to them.

Only Primary Modes are required in European melodic music, as it is based on two Primary Scales. These Modes can be represented by means of either of two systems of seven Keys in each, having C and E as their common initials. These may be called the Flat and the Sharp Systems, as most of the Keys in them have flat and sharp signatures respectively. [These systems have been worked out in the last preceding foot-note.]

Owing to the similarity of Primary Sclales the number of the Mode of the Scale which a Mela represents cannot be ascertained from the Mela itself. The number of the Murchhanā, like that of the Grāma, can be ascertained from either the Amsas or the Varjita Svaras.

3. AMSAS.

In European music only one particular note of a Scale is regarded as "the Key-note" or "the Tonic". It has been shown in the chapter on the structure of Scales that, as any theory regarding their structure must be built on the relationship of consonance of notes, no one note can account for the existence in the Scale of all the other notes. Only four notes in a Scale can be consonant to a particular note. The notes which are nearest to it are dissonant to it. Two notes exist in every good Scale which hold such position. In the European Major and Minor Scales these notes are called "the Tonic" and "the Domi-

other parts of the world, as will appear from the following passage :—

"Even to the present day the great eastern nations of Persia, India and China, who dislike our harmony, are exceedingly exact about the correct intonation of the various modes of melody" (Ibid, p. 70).

Lovers of melodic music in Europe may be interested to know that the Modes used in India include not merely the Ecclesiastical Modes of Europe which are based on Primary Scales, but many beautiful Modes based on Secondary and Chromatic Scales unknown to Europe.

nant". It has been shown that these two notes hold quite similar positions in the Scale and that there is no reasonable ground for preferring the one to the other as the "the Key-note" of the Scale. All Scales except those which are of rather inferior position in the musical art and are tetrachordal in their structure must be considered to be *bicentric*. Both the centres of a Scale have been called by the same name "Amsa" or "Tonic". In order to distinguish them from each other one has been called the Adhara Amsa or the Lower Tonic and the other the Uttara Amsa or the Upper Tonic.

The Mediant of the Primary First and Fourth Scales (Diatonic Major and Minor Scales) has the same number of consonant notes in the Scale as the aforesaid two Tonics. It may, therefore. be considered as the third Tonic of each of these Scales and called the Madhya Amsa or Middle Tonic. Although these Scales possess three centres theoretically, they are bi-centric in practical use. For only two of the three centres come into play either in ascent or in descent. The Middle Tonic together with one of the other two Tonics account between themselves for all the other notes of the hexatonic forms of the above-mentioned two Scales, and may therefore, be treated as the only two centres of those forms. The Hexachord of Guido of Arezzo is an instance in point. Here it is :

$$\overset{*}{C}\quad D\quad E\quad F\quad G\quad \overset{*}{A}$$

It is a hexatonic form of the Diatonic Minor Scale (Primary Fourth Scale) omitting B. The notes A, E and C are the Lower, the Upper and the Middle Tonics respectively of the full Scale. But, in the above-mentioned hexatonic form it is a Unitary Scale with C and A as the Tonics, which account for all the other notes, each having four notes consonant to it. In Indian Just Notation the Hexachord would stand thus :—

$$\begin{array}{cccccc} \overset{*}{\text{Sa}} & \text{Rā} & \text{Ga} & \text{Ma} & \text{Pa} & \overset{*}{\text{Da}} \\ & 8 & 9 & 5 & 9 & 8 \end{array}$$

This Hexachord is quite similar in ascent and descent.

In ancient Indian music every Grāma was considered to possess three Amsas, to which the three drums used as accom-

paniments were tuned. It appears from the three kinds of Mārjanā (tuning) that the Mediant was considered as one of the Tonics of the three Grāmas : Shadja, Madhyama and Gāndhāra. The Madhyama and Gāndhāra Grāmas were identical with the Primary First and Fourth Scales respectively. But, the Shadja Grāma, which was identical with the Primary Second Scale, was also considered to have three Amsas. This practice appears to have continued in the earlier Jāti period, as we have seen that the original twenty-one Jātis had altogether sixty-three Amsas, each Jāti evidently having three Amsas. In their later decadent stage as we find it in the Bhāratîya Nātya Shāstra the ealier tradition was somehow lost and the number sixty-three was made up by an absurd ingenious method of calculation, as shewn in a preceding chapter. Nevertheless, we find a clear indication of that tradition in the aforesaid work in the rule that there could be only three kinds of Mandra in each Jāti according to the three notes used as the Vādî, the Nyāsa and the Apanyāsa, which evidently represented the three Amsas. That one of the Amsas was used as the Nyāsa is evident from the fact that in all the Jātis mentioned in the Nātya Shāstra except three, which were mistakenly given only one Amsa, the note used as the Nyāsa was included in the list of Amsas.

Only one of the three Amsas was used as "the Amsa" or Vādî in a particular piece of composition, as we find in the passage :

"That note which is the Amsa in a certain place (i.e. composition) is the Vādî there". It is only this Amsa that is said to be "perceived very much (*atyartham upalabhyate*) in a oombination of many notes". This prominence was given in two ways ; first, by placing the note at the beginning of the composition, when it was called *Graha* (initial) ; and secondly, by *bahutva* (largeness of number) or *sanchāra* (repetition), when it was called *balî* (strong note). In modern Rāga music also prominence is given to the Vādî in a quite similar way. The rule of placing the Vādî at the beginning is, however, not strictly followed. The word *graha* has, thus, lost its ancient

significance. The Vādî of a Rāga is the initial note of its concluding phrase. It may, therefore, be considered as the Graha of that phrase. There are many compositions in which this phrase is placed at the very beginning The Vādî of the Rāga may be called the Graha of such compositions.

The ancient tradition of the use of the three Amsas as Vādi, Nyāsa and Apanyāsa was practically lost in the medieval period. The number (three) of the important functions of Amsas, however, appears to have lingered in the memory of the medieval theorists. But, the use of Apanyāsa having been forgotten, Graha was substituted for it and the three functions came to be called Amsa, Graha and Nyāsa. At a later decadent stage only one note was made to perform all the three functions. We thus find such expressions as "Sa-trika", or "Ma-traya" which implied that Sa or Ma was to be used as Amsa, Graha and Nyāsa. The æsthetic significance of these functions of the Amsas was thus nearly lost. Ahobala, Hridaya Nārāyana and Somanātha are the only medieval theorists who mention different notes as Amsa, Graha and Nyāsa of some of their Rāgas. Later South Indian theorists followed the usual medieval practice of having only one note for all the three functions. Modern North Indian theorists have made a departure from the medieval practice and have, thus, shown a remarkably keen sense of tonality by providing every Rāga in their books with two central notes called Vādî and Samvādî, practically recognizing the bi-centric character of Scales. The most notable of these modern theorists are Vishnu Nārāyana Bhatkhande and Kāshinātha Apātulasi. The Samvādî note is found to be usually treated as the Nyāsa by these theorists[2].

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2. In the fourth volume of his "Hidusthānî Sangîta Paddhati" (in Mārāthi). Bhatkhande gives forty general rules which are to be observed in Hidusthanî music (Ed. 1932. pp. 99/105). It is laid down in Rule 6 that the Scale-octave is to be divided into two over-lapping parts called Angas, the lower part from Sa to Pa being called Purvānga and the upper part from Ma to Sa being called Uttarānga. According to Rule 13 a Rāga which has its Vādî in the Purvānga is to be called Purvānga-vādî Rāga or simply Purva Rāga and a Rāga which

Amsas of Melas belonging to Chromatic Scales and the Second, the Third, and the Fifth Secondary Scales can be

has its Vādî in the Uttarānga is to be called Uttarānga-vādi or Uttara Rāga. Rule 11 lays down that a Purva Rāga is to be sung from 12 o'clck noon to 12 o'clock midnight, and Uttara Rāga is to be sung from 12 o'clock midnight to 12 o'clock noon. According to Rule 16 the Samvādî is to be found in the Uttarānga if the Vādî is in the Purvānga and *vice versa.* Rule 23 lays down that the same *That* (Mela) may be the basis of either a Purva Rāga or an Uttara Rāga, if the Vadî and the Samvādî interchange their functions. According to Rule 31 the character of a Purva Rāga is most clearly perceived in its ascent and that of an Uttara Rāga in its descent. This points to the fact that a Purva Rāga is predominantly ascending and an Uttara Rāga predominantly descending in character. The phrase which concludes a Purva Rāga must, therefore, be an ascending phrase. The Vadî of a Purva Rāga, which occurs in the Purvānga is, consequently, the starting note or Graha of its concluding phrase and the Samvādî which occurs in the Uttarānga is its final note or Nyāsa. For similar reasons, the Graha and the Nyāsa hold reverse positions in an Uttara Rāga. These inferences regarding the functions of Vādî and Samvādî from the aforesaid rules are clear enough. But, Bhatkhande nowhere mentions these functions explicitly. Elsewhere in the same volume (pp. 509-511) the learned author speaks about the closing notes of improvised phrases (tānas) as temporary Vādî, and enjoins that in such cases the singer must ultimately bring the original Rāga to the fore-front by concluding the last phrase with the proper Vādî of the Rāga. Here the author clearly gives the function of Nyāsa to the Vādî.

Kader Buksh of Murshidabad enjoins in his book "Sangîta Vikāsha" (in Bengali, p. 13) that the *Sam* or the concluding strong accent of a musical composition must be placed either on the Vādî or on the Samvādî. So, according to this author either of these two notes may be used as the Nyāsa.

It thus appears that althoguh Vadî and Samvādi are almost universally recognized as the two central notes or Amsas of a Rāga by modern theorists of northern India, there is no fixed rule about the use of these notes as either the Graha or the Nyāsa. In actual practice, however, Samvādî is usually found to be used as the Nyāsa. This is the proper practice, inasmuch as Vādî has been identified with Graha since ancient

definitely ascertained from the structure of the Melas themselves, as shown in the chapter on Melas. But, Amsas of Melas belonging to Primary Scales and the First and the Fourth Secondary Scales cannot be ascertained from the Melas themselves. For them we must either rely on books on musical theory or in doubtful cases find them out from authentic classical compositions. The concluding phrases of Rāgas in these classical compositions will in most cases be found to be very helpful in finding out the Amsas. The two Amsas of a Rāga are usually placed at the beginning and the end of its concluding phrase as the Vādî and the Nyāsa.

The following hints will be found useful for ascertaining the Amsas :

(a) The two notes of a Mela which are separated by a Tritone (three Tones) cannot be Amsas ;

(b) The two Amsas must be related to each other either as Perfect Fourths (five Semitones) or as Perfect Fifths (seven Semitones) ;

(c) In a hexatonic Rāga the note either at the lower or at the upper end of the open Third is one of the Amsas. In a pentatonic Rāga the two notes either at the lower or at the upper ends of the two open Thirds are the Amsas.

If the Varjita Svaras are known, the Amsas of most of hexatonic or pentatonic Primary Melas can be ascertained from Table III or IV and Table I or II, given below.

times. Samvādî is, as already pointed out, an unhappy expression. "Samavādî" (i.e. co Vādî) which has been substituted for it by some writers, is a more appropriate word, as it is usuallly also used as the Graha of the penultimate phrase of a Rāga. We prefer to call the starting note of this phrase "Apavādi" on the analogy of its concluding note, which is called "Apanyāsa".

4. VARJITA SVARAS.

That omission of certain notes from a Scale is not to be ascribed to any difficulty in singing small intervals, viz., the Semitones, as Prof. Helmholtz supposed, is shown by the facts that transilient Scales have been used along with the original full Scales since most ancient times in India and that there are transilient Scales other than those mentioned by Prof. Helmholtz in which the Semitones are left in tact. Use of intervals even smaller than the ordinary Semitones, viz., the Small Semitones, consisting of only three Nonatones (the ordinary Semitone being of five Nonatones), came into vogue with the introduction of Chromatic Scales. It has been shown in the sixth chapter that notes are omitted from Scales for the purely æsthetic purpose of having open Thirds either Major or Minor above or below the Tonics. There is, however, a scientific justification for the omission of notes which was never dreamt of by ancient theorists, who were guided solely by their almost infallible musical instinct. That justification is to be found in the necessity of avoiding false Thirds, which are inherent in the structure of Scales. It has been shewn that the two extreme notes of every Scale Hepted are related to each other as false Thirds. One of these two notes must be omitted in every good melody in pursuance of the melodic rule that every third note must be consonant. Every Scale must, therefore, be used in one of the two possible hexatonic forms, except the Third Modes, which can be used in full form, because the false Thirds, being inverted in their positions in these Modes, are placed sixth from each other. The hexatonic Modes of Scales are often mistaken as full on account of oblique (*vakra*) use of the omitted note explained in a preceding chapter. A pentatonic form of a Mode is obtained by omitting the fourth or fifth note above the note omitted in a hexatonic form. There is no scientific necessity for omitting this note. The omission is made for the purely æsthetic purpose of creating parallelism by having open Thirds above or below both the Tonics. Prof. Helmholtz speaks of only one kind of pen-

tatonic Modes, which have open Minor Thirds and have their Semitones obliterated. There is another class of pentatonic Modes, which have open Major Thirds and include both the Semitones. The Rāga Behāga is a notable instance in which this latter kind of pentatonic Mode is used.

These hexatonic and pentatonic Modes belong only to Simple Scales. We have shown, while dealing with the early stages of Indian Music, that these Shādava and Auduva Tānas of Murchhanās of the four ancient Primary Scales have been worked out in the Nātya Shāstra with almost scientific precision, the few mistakes being due either to want of scientific knowledge or ignorance of later scribes.

Chromatic Modes are seldom used in transilient forms because a Chromatic Scale is in reality a combination of two transilient Scales.

HOW TO ASCERTAIN ONE FEATURE FROM ANOTHER.

(1). To ascertain Grāma from Amsa : The number of the Scale to which a Primary Mela belongs can be ascertained from its Lower and Upper Tonics. If these two Amsas of a Rāga are known the number of the Primary Scale to which the Mela used in the Rāga belongs can be ascertained from the table given below. The seven Primary Melas are given in the first column of the table and the corresponding Amsas are shown in the succeeding four columns. The Roman numerals : I, II, III and IV placed at the heads of these columns indicate the *numbers of the first four Primary Scales.* The Adhara and the Uttara Amsas are placed first and second respectively in the table. They are given in Just Notation, so that the Modes which the Melas represent can be written in Just Notation by correcting the Fifths and the Thirds above and below the Amsas.

TABLE I.

Numbers of Primary Scales in relation to Amsas :

Primary Melas	Amsas			
	I	II	III	IV
Shuddha ...	Sa, Pa	Pa, Ra	Rā, Da	Da, Ga
No	Ma, Sa	Sa, Pa	Pa, Ra	Rā, Da
No Go	Nŏ, Ma	Ma, Sa	Sa, Pa	Pa, Ra
No Go Do ...	Go, No	Nŏ, Ma	Ma, Sa	Sa, Pa
No Go Do Ro ...	Do, Go	Go, No	Nŏ, Ma	Ma, Sa
No Go Do Ro Po	Rŏ, Do	Do, Go	Go, No	Nŏ, Ma
Mi	Pa, Ra	Rā, Da	Da, Ga	Ga, Na

The Primary Fifth Scale has been omitted in the above table, because it is a tetrachordal Scale having three Amsas, and and so differs in character from the other Scales.

(2). To ascertain Murchhanā from Amsas : The number of the Murchhanā of any Grāma which a Mela represents can be ascertained from the Amsas, inasmuch as it has a fixed relationship with them. The following table will show these relationships :

TABLE II.

Numbers of Murchhanās in relation to Amsas :

Murchhanā			Amsas
First	...	...	Sa, Pa
Second	...	...	Nŏ, Ma
Third	...	...	Da, Ga or Do, Go
Fourth	...	...	Pa, Ra,
Fifth	...	...	Ma, Sa
Sixth	...	...	Ga, Na or Go, No
Seventh	...	...	Rā, Da or Rŏ, Do

These relationships hold good in the Modes of all Scales, Simple or Chromatic. There is, therefore, unity of Tonics in the Modes of the same number belonging to all the twenty Scales. Thus, the First Modes of all the twenty Scales have the same Tonics Sa, Pa ; the Second Modes the same Tonics Nŏ, Ma and so on. In the Third, the Sixth and the Seventh Modes differences by a Semitone will be found in the Amsas. But, this is only apparent and is due to the necessity of having a Common Initial (Sa) for all the Modes. Unity of Tonics can be brought about in these cases also by sharpening or flattening all the notes by a Semitone according to necessity. The Initial (Sa) in such cases will also have to be sharpend or flattened by a Semitone as the case may be.

(3). To ascertain Grāma, Murchhanā and Amsas from Varjita Svaras : We have seen that all Modes of Simple Scales except the Third Modes must be used in a transilient form, either hexatonic or pentatonic, and that hexatonic Modes are sometimes mistaken as full Modes owing to oblique use of the omitted note. Every authentic description of a Rāga must, therefore, mention the note or notes omitted in it. The mention of these notes is most important in the description of a Rāga, not only because the omission of these notes is essential for characterization of the Rāga, but also because the three features Grāma, Murchhanā and Amsas of the Rāga can in most cases be ascertained from them. Two tables are given below for ascertaining the numbers of Grāmas and Murchhanās of Rāgas from the omitted notes. In Table III the numbers of Primary Scales and their Modes are shown in relation to the omitted notes of hexatonic Melas ; and in Table IV these numbers in relation to the omitted notes of pentatonic Melas are shown. The numbers of the Scales are given in Roman numerals and those of the Modes in Arabic numerals. The omitted notes are shown without vowel-endings, as they can be either Shuddha or Vikrita according to the Melas to which they belong.

TABLE III.

Numbers of Primary Scales and their Modes in relation to omitted notes of hexatonic Melas :

Mela	Omitted Note					
	R	G	M	P	D	N
1. Shuddha ...	I, 1 or IV, 3	III, 7	I, 1	III, 7	II, 4	IV, 3
2. No ...	II, 1	IV, 7	II, 1	IV, 7 or I, 5	III, 4	I, 5
3. No Go ...	III, 1	I, 2	III, 1	II, 5	IV, 4	II, 5
4. No Go Do ...	IV, 1	II, 2	IV, 1 or I, 6	III, 5	I, 6	III, 5
5. No Go Do Ro	I, 3	III, 2	II, 6	IV, 5	II, 6	IV, 5 or I, 3
6. No Go Do Ro Po	II, 3	IV, 2 or I, 7	III, 6	I, 7	III, 6	II, 3
7. Mi ...	III, 3	II, 7	IV, 6	II, 7	IV, 6 or I, 4	III, 3

There are some hexatonic Melas which can be identified either with a Mode of the First or with that of the Fourth Primary Scale. They are as follows :—

(a) The first Mela without R, the second Mela without P, the fourth without M, the fifth without N, the sixth without G, and the seventh without D can be identified with Modes of either the First or the Fourth Scales, because the omitted note in each of these Melas is the distinctive note of the two Scales, and may, therefore, differ by a comma.

(b) The first and the second Melas without N, the second and the third without G, the third and the fourth without D, the fourth and the fifth without R, the fifth and the sixth without P, and the seventh and the first without M can be identified with a Mode of either the First or the Fourth Scale, because the omitted note in each of these pairs of Melas may be either natural or flat or sharp.

TABLE IV.

Numbers of Primary Scales and their Modes in relation to omitted notes of pentatonic Melas :

Mela	Omitted Notes									
	RD	DR	GN	NG	PR	RP	DG	GD	NM	MN
1. Shuddha ...	I, 1	...	III, 7	...	...	IV, 3	II, 4	...	IV, 3	I, 1
2. No. ...	II, 1	...	IV, 7	I, 5	I, 5	...	III, 4	...	...	II, 1
3. No Go ...	III, 1	...	...	II, 5	II, 5	...	IV, 4	I, 2	...	III, 1
4. No Go Do ...	IV, 1	I, 6	...	III, 5	III, 5	...	...	II, 2	...	IV, 1
5. No Go Do Ro ...	...	II, 6	...	IV, 5	I V, 5	I, 3	...	III, 2	I, 3	...
6. No Go Do Ro Po ...	...	III, 6	I, 7	...	...	II, 3	...	IV, 2	II, 3	...
7. Mi ...	...	IV, 6	II, 7	...	...	III, 3	I, 4	...	III, 3	...

Of the pentatonic Melas the Shuddha Mela without M and N, the No-Mela without G and N, the No-Go-Mela without G and D, the No-Go-Do-Mela without R and D, and the No-Go-Do-Ro-Mela without R and P can be identified either with a Mode of the First or with a Mode of the Fourth Primary Scale, because the notes separated by a Tritone (three Tones) in the Modes of both of these Scales are omitted in one of their two pentatonic forms. In just intonation the two similar pentatonic forms of each of these Melas are distinguished from each other by means of their distinctive notes, which differ by a comma (Anushruti). For example, in the Shuddha Mela the distinctive notes are Ra and Rā.

It will be observed that the same pair of omitted notes in Table IV has been placed in two consecutive columns in inverted orders. For instance, the omitted pair RD of the first column has been written as DR in the second column. This has been done in order to indicate that the first note of these two pairs is the omitted note of the corresponding hexatonic form.

The Amsas of a particular hexatonic or pentatonic Mela can be ascertained from Table II, after the number of its Mode is ascertained from Table III or IV.

5. NYĀSA.

The word 'Nyāsa', which literally means 'laying down' is equivalent to the word 'final', used in medieval ecclesiastical music of Europe. The earliest mention of the word is found, as stated elsewhere, in the Nāradīya Shikshā. But, the word did not originally possess its modern æsthetic significance, as in the most ancient melodies a single note was used as the Nyāsa, viz. Madhyama of Sāma Vedic sacredness. Subsequently, the note Panchama also came to be used as the Nyāsa, as we find in the melodic compositions in two of the basic modes of the Kudimiyāmālai rock-inscription. The concluding note was, thus, at first either the fourth or the fifth note of the Scale. At a later period all the notes of the gamut might be used as concluding notes in the Jātis. But, in their earliest stage, the concluding note was as a rule the initial note (Mandra) of each

of the seven Shuddha Jātis which were called after the seven notes of the Scale. It was only when at a later stage of development the initial note of a Vikrita Jātî might be any one of its three Amsas, that the modern significance of the Nyāsa came to be attached to the concluding note in a limited sense. That word acquired its full significance by the introduction of the Murchhanās, in which the concluding note might hold all possible positions in the Mode-octave, and thus produce different mental effects owing to its different relationships with the Initial note. The difference in the mental effects produced by notes placed in different positions in the Scale, which was appreciated by ancient Indians and Greeks and which is in modern times utilized by Tonic-Solfaists of Europe in their method of teaching music, is of great æsthetic importance in the modern Rāga art of India[3]. The important fact about the mental effect of a note which seems to have often been lost sight of is that it is dependent not merely on the position of the note in the Mode-octave, but mainly on its position either in the ascending or in descending progression of a melodic composition. It makes a vast difference in the mental effect whether a note concludes an ascending or a descending section or phrase. The time-theory of Indian melody is based mainly on the ascending and the descending character of Rāgas. They have been divided by Bhatkhande into Purva and Uttara Rāgas. The Character of a Rāga is determined by its concluding phrase, which is ascending in a Purva Rāga and descending in an Uttara Rāga. The Nyāsa of the concluding phrase of a Purva Rāga is in the Uttarānga or upper pentachord and that of the concluding phrase of an Uttara Rāga is in the Purvānga or lower pentachord. It thus appears that a Rāga partakes of an ascending or a descending character according to the position of the Nyāsa either in the Uttarānga or in the Purvānga. The mental effects produced by the two kinds of Rāgas are quite distinct from each other.

3. Vide footnote in Chapter VII on Modes for ancient and modern views on these mental effects.

The ascending Rāgas with their Nyāsas in the upper part of the Mode-octave create a despondent or pensive or mournful mood such as is produced by apprehended or actual separation from or loss of a coveted object. On the other hand, the descending Rāgas with their Nyāsas in the lower part of the Mode-octave produce a peaceful or hopeful or joyous mood such as is brought about by imminent or actual gain of a coveted object. These two kinds of mood of the mind are intimately connected with darkness and light or their approach. Purva (ascending) Rāgas are associated with twi-light of evening and darkness of night; whereas, Uttara (descending) Rāgas are associated with dawn and advancing or waning light of day.

It would be clear from what has been stated above that a particular note of fixed pitch does not possess any inherent power of producing a mental effect. It is the relative position of the note in the Mode-octave which accounts for the effect. To produce the required effect the note must be preceded by some other note. The Nyāsa produces its effect only when it is sounded after the Vādî or Graha. Its position in the Mode-octave must also be brought clearly before the mind by actual reference to the note at one of the extreme ends of the Mode-octave. In other words, it is only in relation to the Vādî and the Mode-Initial that the Nyāsa acquires its significance and produces a mental effect. The effect of combination of these three notes is of a rather general character, and may be common to more than one Rāga. The characteristic flavour of a particular Rāga is imparted to it mainly by its concluding phrase, which starts with the Vādî and closes with the Nyāsa. The difference in the concluding phrases of different Rāgas having the same notes as Vādî and Nyāsa, is brought about by the difference in the relative pitch and the disposition of the other notes of the phrase.

In European music only the Adhara Amsa is considered to be fit for being used as the cadence or final note. In actual practice, however, both the Adhara and Uttara Amsas are invariably used as final notes jointly in the concluding chord,

as the "Tonic" and the "Dominant". This chord includes also the Mediant, which should, therefore, be also considered as a cadence note. We have seen that this note has four notes consonant to it like the aforesaid two Amsas in the Primary First and Fourth Scales and should be considered as the Madhya Amsa (Middle Tonic) of these two Scales. The use of this note in the final chord of European music is quite justified so far as that music is based on only these two Scales.

In Indian music the Madhya Amsa is freely used as the Nyāsa of Rāgas based on the hexatonic forms of Modes of the above-mentioned two Scales. In Modes of other Scales only the Adhara and the Uttara Amsas are mostly used as Nyāsa, though the use of the Madhya Swara as Nyāsa is not uncommon in Modes of Chromatic Scales.

The Nyāsa of a Rāga composition is usually emphasized by a super-strong accent. It is called "Sam" in the rhythmical time-measures of Hindusthānî music. Every time-measure (Tāla) consists of several bars (padas), of which only one has a super-strong accent (Sam) on its starting note. A composition consists of several time-cycles (*Aordās*); and as each cycle has a *Sam* in it, there are as many *Sams* in a particular composition as there are time-cycles in it. But, it is only on one particular Sam that conclusion is made. Conclusion on any other Sam is not considered to be satisfactory. This points to the fact that this particular Sam is placed on the Nyāsa note of the Rāga. Unfortunately, the word 'Nyāsa' has been abandoned by modern theorists and musicians and the misleading word "Sam" has been substituted for it, unconsciously ignoring the significance of the Nyāsa. But, any intelligent observer will notice that it would be impossible to have the thrilling effect, which is so anxiously expected by Indian listeners of Rāga music, unless the stroke of Dha on the accompanying drum is synchronous with a note which is capable of producing that effect. From the artistic point of view, there can be no divergence of practice in this respect between India and Europe where cadence is invariably made on the Tonic, which was called "Final" by medieval musicians.

The Nyāsa is sometimes brought to prominence in Hindusthānî music by means of what is called "Tehāi", i.e., repetition of the concluding phrase three times. It often becomes difficult for a listener to appreciate the effect of a Nyāsa when a musical composition is repeated several times in quick succession. So, in a good composition the Nyāsa should be prolonged throughout the *pada* (bar) next following the "Sam" or there should be a short pause after it.

6. APANYĀSA.

The feature of Rāgas called *Apanyāsa* is closely related to the feature *Nyāsa*. They have to perform the similar functions of concluding different parts of a melodic composition. These two words together with the two other words *Vinyāsa* and *Sannyāsa* are found in the definition of Amsa in the Nātya Shāstra. The word '*nyāsa*' which occurs in each of these four words shows that all of them were used as concluding notes of four different sections of a Jāti composition. One or other of the Amsas of a Jāti were used as these concluding notes. A similar usage is also found in the Rāga system of the thirteenth century A. D. Shārngadeva speaks of four sections of *Ālāpas* of Rāgas of his time, which were called *Swasthānas*. These four sections had for their concluding notes *Sthāyî*, *Dwyardha*, *Ardha-sthita*, and *Dwiguna*. Of these Sthāyî was the principal note, which was considered to be the seat of the Rāga, Dwyardha was the fourth above the latter note, Dwiguna was its octave, and Ardha-sthita was the note situated between Dwyardha and Dwiguna i.e. to say, the sixth above the Sthāyî[4]. If we take Sa to be the Sthāyî, the other three

4. The four *Swasthānas* of Ālāpa are described by Shārngadeva in the following passages :—

"यत्रोपवेश्यते रागः स्वरे स्थायी स कथ्यते ।
ततश्चतुर्थो द्वार्धः स्यात् स्वरे तस्मादधस्तने ॥
चालनं मुखचालः स्यात् स्वस्थानं प्रथमं च तत् ।
द्वार्धस्वरे चालयित्वा न्यसनं तद्द्वितीयकम् ॥
स्थायिस्वरादष्टमस्तु द्विगुणः परिकीर्तितः ।
द्वार्ध-द्विगुणयोर्मध्ये स्थिता अर्धस्थिताः स्वराः ॥

notes would be Ma, Dha and Sa[1]. Transposing these four notes to fourths below each, we get the notes Pa_1, Sa, Ga, and Pa. These correspond to G_1, C, E and G of European music, which constitute the tonic chord with the dominant placed an octave lower. It appears that the first section started with the Upper Tonic in the lower octave and ended with the Lower Tonic; the second section started with the latter note and ended with the Middle Tonic (Mediant), the third section started with the latter note and ended with the Upper Tonic, and the fourth section started with the latter note and ended with the same note in the lower octave. All Rāgas, thus, had the Upper Tonic (dominant) as both its Graha and Nyāsa. These rules enjoining the compulsory use of particular Amsas at the ends of particular sections of a Rāga composition were evidently intended for effecting satisfactory co-ordination of those parts. These fixed rules had to be abandoned in the later stages of development of Rāgas. The use of Amsas as the concluding notes of all sections of a musical composition since the earliest period, however, points to the æsthetic necessity of the use of Amsas for effecting co-ordination of parts. The ancient practice of dividing melodic compositions into four parts is still followed in the classical Dhrupad style of Hindusthānî music. The four periods called *Tooks* of compositions of this style are called Sthāyî or Āsthāyî, Antarā, Sanchārî and Ābhoga. The word "Sthāyî" was, as seen above, used in the time of Shārngadeva to indicate the principal note of the Rāga and served as the concluding note of the fourth or last section. This word is, therefore,

अथास्थिते चालयित्वा न्यसनं तु तृतीयकम् ।
द्विगुणं चालयित्वा तु स्थायिन्यासाच्चतुर्थकम् ।
एभिश्चतुर्भिः स्वस्थानैः रागालप्तिर्मता सताम् ॥"

—Sangîta Ratnākara

Chāiana mentioned in these passages appears to mean not only starting with a note but also making it prominent by repitition as the Graha or Vādî of a Swasthāna.

equivalent to either the Vādî or the Samvādî of modern music used as the Nyāsa. The word "Nyāsa" was used by Shārngadeva in an abstract sense in the expression "Sthāyî-nyāsa", which meant conclusion with the Sthāyî. The fourth Swasthāna of Shārngadeva, which ended with the Sthāyî note, corresponds to the first *Took* of a Dhrupad composition which is called Sthāyî or Āsthāyî. The modern usage is to begin and end with the Sthāyî period, which concludes with the so-called Sam note *i.e.* to say the Nyāsa. This final note may be any one of the three Amsas in modern music. Although satisfactory co-ordination of parts requires the use of the Amsas as the concluding notes of all the periods, there is no fixed rule about the use of particular Amsas for this purpose. In the ancient Jāti system the concluding notes of only two sections were fixed by rules. These were the sections which concluded with the Nyāsa and the Apanyāsa. We accordingly find mention of particular notes to be used as Nyāsa and Apanyāsa in the description of every Jāti. Response of these two sections with each other by means of their concluding notes Nyāsa and Apanyāsa appears to have been considered an essential feature of a Jāti. In the final stage of development of Rāga, this response by means of fixed concluding notes was found to be essential for the last two phrases which were characteristic of a Rāga. The concluding note of the last Characteristic Phrase of a Rāga has, therefore, been called by the name Nyāsa and that of the penultimate Characteristic Phrase by the name Apanyāsa.

7. VISHISHTA TĀNAS.

The last and the most important feature of a Rāga is the combination of two phrases, which are placed at the end of every composition of the Rāga and respond to each other by means of their concluding notes, the Nyāsa and the Apanyāsa. These phrases are of contrary motion. In other words, one of them is of ascending and the other of descending character. The peculiar structures of these phrases give to the Rāga its characteristic flavour which distinguishes it from other Rāgas. They have, therefore, been called

Vishishta Tānas or Characteristic Phrases. These *Tānas* may be compared to the faces of human beings, which distinguish them from each other. The marked individuality which these *Tānas* impart to Rāgas led certain theorists of medieval Hindusthānî music to depict them as semi-divine personalities. In north India they are called *pakad* or catch phrases and in south India *pidippu*. The concluding phrase, has been called the *Nyāsa Tāna* or Cadence Phrase, and the phrase preceding it the *Upānta Tāna* or Penultimate Phrase.

Melodic structure is based essentially on "Perfect Phrases" just as harmonic structure is based on "Chords". The scientific basis of these phrases and their use in the structure of Rāgas have, therefore, to be now dealt with.

B. PERFECT PHRASE (PURNA TĀNA).

A *Purna Tāna* or Perfect Phrase is one which is self-contained, i.e., to say, complete in itself. It must be based on a small group of notes which is complete and perfect in the inter-relationship of the notes constituting it. Such a group of notes resembles in almost all respects a full Scale, of which it forms a part. Like a full Scale it consists of notes which are related to one or other of two central notes. In other words, it is a small bicentric Scale, which is distinguished from a full composite Scale by its unitary character and by the fixed positions of its central notes, which are always placed at its extreme ends. Such groups of notes have been called Unitary Scales in the chapters on the structure of Scales. It has been shown in these chapters that every Scale is formed by combination of two such Unitary Scales, which have the same central notes as the full composite Scale. It has also been shown that most Scales contain one or more Unitary Scales other than the two which go to constitute them. A Perfect Phrase starts with the note at one extremity of a Unitary Scale and ends with the note at its other extremity, and expresses a complete melodic idea. It is independent of other phrases and possesses a distinctive individuality.

(a). Unitary Scales : These phrases are found on analysis to be based fundamentally on what have been called Dissonant or Melodic Triads. Each of these triads consists of three notes,

of which two are dissonant to each other and consonant to the third. The "Related Dissonances" of these triads play a most important part in the melodic art. Melodic Triads may be considered as Elementary Scales. A Unitary Scale is usually composed of two Elementary Scales, one ascending and another descending, other notes being added to fill up the gaps, if any, as in the cases of Pentachordal and Hexachordal Unitary Scales. For example, the Pentachordal Scale Sa Ra Ga Ma Pa is composed of the two Elementary Scales or Triads Sa Ma Pa and Pa Ra Sa, the note Ga being inserted to fill up the gap between Ra and Ma. A Hexachordal Scale requires two intermediate notes to fill up the gap between its two component Triads. Tetrachordal Scales do not contain any gaps to be filled up. Trichordal Unitary Scales, which are found in Chromatic Scales only, are of an elementary character and are either ascending or descending. Different Unitary Scales found in different composite Scales have been shown while dealing with the structure of those Scales. All these have been put together and arranged below for the sake of convenience with Sa as initial.

Unitary Scales.

Primary :			
Tetrachordal	(1)	Sa Rā Ga Ma	
	(2)	Sa Rā Go Ma	
	(3)	Sa Rŏ Go Ma	
Pentachordal	(4)	Sa Ra Ga Ma Pa	
	(5)	Sa Ra Go Ma Pa	
Hexachordal	(6)	Sa Rā Ga Ma Pa Da	
	(7)	Sa Rŏ Go Ma Pa Do	
Secondary :			
Tetrachordal	(8)	Sa Rŏ Ga Ma	
Chromatic :			
Trichordal	(9)	Sa Go Ga	**(Ascending)**
	(10)	Sa Si Ga	**(Descending)**
Tetrachordal	(11)	Sa Go Ga Ma	**(Ascending)**
	(12)	Sa Rŏ Rā Ma	**(Descending)**
Pentachordal	(13)	Sa Go Ga Ma Pa	**(Ascending)**
	(14)	Sa Ra Go Ga Pa	**(Descending)**

Hexachordal (15) Sa Go Ga Ma Pa Do **(Ascending)**
(16) Sa Rŏ Go Mo Ma Do **(Descending)**
(17) Sa Go Ga Ma Pa Da **(Ascending)**
(18) Sa Rā Ga Ma Mi Da **(Descending)**
(19) Sa Go Ga Ma Do Da **(Ascending)**
(20) Sa Si Ga Ma Mi Da **(Descending)**

The eight Simple Unitary Scales can be used both in ascent and in descent.

These twenty Unitary Scales which start with Sa, the Common Initial of all Modes, take different forms if they start from other degrees of the Modes. A Trichordal Scale may have altogether six forms, starting from one or other of the first six degrees of six different Modes. A Tetrachordal Scale may have five forms starting from one or other of the first five degrees of five different Modes. Similarly, a Pentachordal and a Hexachordal Scale may have four and three forms respectively. Each of these forms of Unitary Scales may be used as the basis of a perfect melodic phrase. The Chromatic Scales have been chracterized as either ascending or descending because they can be used in their full forms only in ascent or in descent respectively. But, all Scales can be used both in ascent and in descent if certain notes are omitted. Without such possibility melodic progression would be impossible, as melody cannot proceed in one direction only. A Scale which is described as ascending or descending can be used in descent or ascent by judiciously omitting one or more of its notes. For example, Unitary Scale No. (17), which is ascending in character, can be used in descent by omitting Go. Thus, Da Pa Ma Ga Sa.

Primary and Secondary Unitary Scales can be used either in ascent or in descent by omitting the next note adjacent to the starting note. For example, Unitary Scale No. (1) can be used in ascent by omitting Rā and in descent by omitting Ga ; thus, Sa Ga Ma and Ma Rā Sa. These Scales are, however, often used in their full forms. At first the note dissonant to the starting note is taken by guess from memory. The progression becomes easy when movement is made in the opposite

direction. For example, in the progression Sa Rā Ga Ma, the note Rā is at first taken from memory and so it is rather uncertain. No difficulty is, however, felt in the movement in the opposite direction Ma Ga Rā Sa, as the note Ga, which was taken correctly in relation to Sa in ascent, becomes in descent a determinate note and fixed in memory. The ascending progression, if repeated, now becomes easy and smooth, as Rā also is now a determinate note and fixed in memory.

(b). Rule of Melodic Progression : In framing phrases on Unitary Scales the rule of melodic progression referred to while dealing with transilient Scales must be observed. This rule with its two exceptions is stated below.

Rule of Progression : In melodic progression every note must be consonant to the third note either above or below it.

Exception No. 1 : The third of a note need not be consonant to it, if the note next following it is consonant to it and the note next preceding it is consonant to its third note.

For example, the progression Ga *Ma Da Na* Sa[1], found in Prāchya Vasanta, is allowable, though Na is dissonant to Ma, because the following note Da is consonant to it and Na is consonant to the preceding note Ga.

Exception No. 2 : The third of a note need not be consonant to it, if the note and the two following notes are all consonant to a strong note next preceding it.

This exception is found only in progressions of Chromatic Scales. For example, the progression Sa *Go Ga Ma* is allowable, though Ma is dissonant to Go, because the three notes Go, Ga and Ma are all consonant to the strong starting note Sa.

The above-mentioned rule of progression must be strictly followed in constructing phrases on the basis of Pentachordal Unitary Scales. These Scales include the false Thirds peculiar to Primary and Secondary Scales. It has been shown how transilient Scales are constructed with a view to avoid these dissonant Thirds. As these false Thirds are included in the pentachordal part of all Simple Scales, let us take Unitary Scale No. (4) by way of illustration in order to show the

application of the rule of progression. In this pentachord the interval Ra—Ma is a false Third. Breach of the rule of progression in it may be avoided in two ways; first, by omitting one of the notes making the false Third; and secondly, by omitting the intermediate note, *i.e.* to say, the Mediant. We thus get three transilient forms of the pentachord for framing phrases :—

(a) Sa × Ga Ma Pa
(b) Sa Ra Ga × Pa
(c) Sa Ra × Ma Pa

The first form is used in ascent and the second in descent. These are the two forms of the pentachord which are usually brought to use. In the third form, which is less usual, the false Third is made a single dissonant interval and Ma and Pa are made consonant third notes of Sa and Ra respectively. Unitary Scale No. (5) will, similarly, have three forms, the third form being identical with that of Unitary Scale No. (4).

Unitary Scales other than Hexachordal can be extended either way by one to three notes in order to form melodic phrases. In doing so care must be taken to always begin and end with the Tonics of the Scales, *i.e.* to say, their extreme notes. Thus, the Trichordal Scale Sa Go Ga may have the extended form Na_1 Sa Go Ga Ma, which must be used as $\overset{*}{Sa}$ (Na_1 Sa) Go (Ga Ma) $\overset{*}{Ga}$. The phrase may be extended further upwards to Pa and Da, or downwards to Da_1 and Pa_1, which are consonant to Sa and Ga. Similarly, a tetrachord may sometimes be extended by one or two notes and a pentachord by one note either way.

The peculiar flavour of a melodic phrase depends mainly on the strength (*bala*) of particular notos. The first and the last two notes must be made strong as a general rule.

C. CADENCE PHRASE (NYĀSA TĀNA).

(a). Rules of cadence: A Nyāsa Tāna or Cadence Phrase must be a Purna Tāna or Perfect Phrase. But, every Purna Tāna of a Scale can not be used as a Nyāsa Tāna.

In order to have a Nyāsa Tāna the following two rules must be observed :—

First Rule of Cadence : The starting and the concluding notes of a Nyāsa Tāna must be Amsas of the Scale to which the phrase belongs.

Second Rule of Cadence : The Upānta Svara or Penultimate Note of a Nyāsa Tāna must be separated from the Nyāsa Svara by the dissonant interval of either a Tone or a Semitone and must be consonant to the starting note.

(b). Melodic and Harmonic Cadence : It is evident from the first rule that the Cadence Phrase which is the principal Characteristic Phrase of a Rāga, fixes the tonality of the Scale on which the Rāga is based inasmuch as the correct positions of all the notes of the Scale must be ascertained from their relationship of consonance to either of the two Amsas, which start and conclude the Cadence Phrase. In this respect the melodic Cadence Phrase is analogous to the last two chords of a European harmonic composition. On ultimate analysis a Harmonic Cadence will be found to be a compressed form of a Melodic Cadence. The second rule of cadence lays down that the last two notes of a Cadence Phrase must be separated by a small dissonant interval. The Upānta Svara is analogous to the "Leading Note" of European harmonic music. This note forms part of the penultimate chord of harmonic music, which has the Dominant (Upper Tonic) as its root. As it is dissonant to the Tonic (Lower Tonic) it must be related to the Dominant. A Harmonic Cadence is essentially melodic in character inasmuch as the leading note, which is indispensable for a cadence, can never be placed in the final Tonic chord. The only difference between the two forms of cadence is that in melody all the three notes constituting a cadence are sounded one after another, while in harmony the first two notes are sounded together.

(c). Four Kinds of Melodic Cadence : Trichordal, Tetrachordal, Pentachordal and Hexachordal : The three notes essential for a Melodic Cadence constitute what has been called a "Melodic Triad". These triads consist of two notes

dissonant to each other and related through a common consonant note. The Related Dissonances play a most important part in melodic music. There are four Related Dissonances, viz, Major Tone ($\frac{9}{8}$), Minor Tone ($\frac{10}{9}$), Minor Semitone ($\frac{16}{15}$) and Small Semitone ($\frac{25}{24}$). These give rise to fourteen Melodic Triads, of which seven are ascending and seven descending. Four kinds of melodic phrases can be based on these Triads, viz., trichordal, tetrachordal, pentachordal and hexachordal. There can, therefore, be four kinds of Melodic Cadence, according to the nature of the concluding phrase. Trichordal Cadences are usually found in Rāgas based on Chromatic Scales. Only one kind of Cadence, the Ascending Tetrachordal, is used in modern harmonic music of Europe. It is identical in its structure with the Melodic Cadence Pa Na Sa[1] (G B C[1]), which is represented by the two concluding chords. Descending Tetrachordal and Pentachordal Cadences were used in the polyphonic music of medieval Europe based on the Ecclesiastical Modes, which have been abandoned in modern music.[5] The exclusive

5. In modern harmonic music of Europe cadence is always of an ascending character. But, in the polyphonic music of medieval Europe cadence was always descending. This difference of custom is accountable to introduction of the doubtful theory of Fundamental Bass in modern music. As a consequence of this theory the melody has to be placed in the uppermost or soprano part and the cadence has to be made ascending in modern music. In polyphonic music the principal melody called *canto fermo*, which was based on one of the Ecclesiastical Modes, might be placed in the lowest or any other part, and the cadence was always descending in character. Further, cadence was in some Modes pentachordal and in others tetrachordal. The forms of *Clausula Vera* or perfect cadence were determined by the following three rules :

(1) The *canto fermo* must descend one degree upon the Final of the Ecclesiastical Mode ;

(2) In the penultimate chord the *conto fermo* must form with the counterpoint either a Major Sixth destined to pass into an octave, or a Minor Third to be followed by unison ; and

(3) One part only must proceed to the Final by a Semitone.

According to these rules the *Clausula Vera* of a composition in the Thirteenth or Ionic Mode, corresponding to the

use of a single form of perfect cadence in modern harmonic music of Europe cannot be justified by any scientific or æsthetic principle and is quite incompatible with the Rāga system of India, which has for its main basis a variety of cadence forms.

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modern Major Scale, might take two different forms as given below :

(1) Counterpoint — G B $\widehat{C^1}$
Canto Fermo — G D $\underset{\smile}{C}$

(2) Canto Fermo — G $\underset{\smile}{D}$ C
Counterpoint — $G_1 \widehat{B_1 C}$

In the first form the Canto Fermo is placed below the counterpoint and their penultimate notes D and B make a Major Sixth, passing into the octave $C-C^1$. In the second form the Canto Fermo is placed above the counterpoint and their penultimate notes D and B_1 make a Minor Third followed by the unison C – C. In both the forms the Canto Fermo descends to the Final by a tone, which is shown by a slur below the interval ; and the counterpoint ascends to its Final by a Semitone, which is shown by a slur above the interval. It thus appears that in polyphonic music cadence in the Ionic Mode was descending in character, whereas cadence in the corresponding modern Major Scale is ascending. Further, the penultimate or "leading" note in the former was separated from the Final by a Tone, whereas in the latter they are separated by a Semitone.

The Dominant (G) has been shown as the Starting note in the cadence given above. In polyphonic music it was not placed, as a rule, in the penultimate chord only, as it is done in modern harmonic music. It was, however, usually given much prominence by sustaining it throughout one of the parts.

The relationship of the penultimate note and the Final with the Dominant was consequently clearly perceived.

The contrast between the medieval and modern perfect cadences in the Ionic Mode and the Major Scale may be shown thus :—

Medieval Cadence – G D $\underset{\smile}{C}$

Modern Cadence – G $\widehat{B C^1}$

The former is pentachordal, the latter tetrachordal ; the former is descending, the latter ascending ; the leading note is separated from the Final in the former by a Tone, they are separated by a Semitone in the latter. It will be noticed that

(d). Direct and Oblique Cadence: Cadence Phrases may be either Direct (*Sarala*) or oblique (*Vakra*). In Direct Cadence the progression is in only one direction either ascending or descending. In Oblique Cadence the progression is partly ascending and partly descending. In an Oblique Ascending Cadence the Upānta Svara is placed above the Nyāsa, so that after proceeding upwards from the Vādî to the Upānta Svara we have to turn back downwards in order to take the Nyāsa. Thus, the Direct Ascending Cadence· Sa Ma Pa would take the form Sa Pa Ma in the Oblique Ascending Cadence. In the Direct Cadence the Amsas are Sa and Pa, found in the Firt Modes of Scales ; and in the Oblique Cadence the Amsas are Sa and Ma, found in the Fifth Modes of Scales. In the former the Nyāsa is, therefore, Pa and in the latter it is Ma. Contrariwise, in an Oblique Descending Cadence the Upānta Svara is placed below the Nyāsa. Thus ; in the Direct Cadence Pa Ra Sa the Amsas are Pa and Sa (as in the First Modes) and the Upānta Svara is Ra, and in the Oblique Candence Pa Sa Ra the Amsas are Pa and Ra (as in the Fourth Modes) and the Upānta Svara is Sa. In both the above Direct Cadences the phrases are pentachordal and in the two

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the modern cadence is identical with that found in the counterpoint of medieval music.

The form of cadence in the Fourth or Hypophrygian Mode of medieval music was different from that the Ionic Mode. The *Clausula Vera* may be shown thus :—

Canto Fermo – A F $\widehat{E}$

Counterpoint – A_1 $\underset{\smile}{D}$ E

The cadence as seen in the Canto Fermo was tetrachordal and descending ; and the penultimate note was separated from the Final by a Semitone, as in modern cadences.

It would thus be seen that the perfect cadence of medieval music was always descending in character, that it might be either pentachordal or tetrachordal ; and that the leading note in it might be separated from the Final either by a Tone or a Semitone. (Vide Grove's "Dictionary of Music and Musicians", Vol. III. pp. 330-333).

The above facts would go to show that the fixed rule of ascending tetracherdal cadence in the harmonic music of modern Europe has no historic sanction.

Oblique Cadences the phrases are based on Tetrachordal Scales extended by one note either above or below the tetrachord. A Pentachordal Cadence can be made oblique by making the Minor or the Major Sixth either above or below the Vādî the Upānta Svara. Thus : Sa Do Pa, Sa Da Pa, Sa¹ Ga Ma, Sa¹ Go Ma. A Minor Hexachordal Cadence used in Chromatic Modes can be made oblique by making the Major Sixth above or below the Vādî the Upānta Svara. Thus : Sa Da Do. Sa¹ Go Ga. A Trichordal Cadence can be made oblique by making the Fourth either above or below the Vādî the Upānta Svara Thus : Sa Ma Ga, Sa¹ Pa Do.

(e). Norms of Cadence (Nyāsa Nidarsha), twenty-eight :

The different Norms of Cadence are given below :

Norms of Cadence with Sa or Sa¹ as Vādî.

Trichordal, Ascending :	Direct		Sa	*Go*	Ga	.....	(1)
	Oblique		Sa	*Ma*	Ga	.....	(2)
			Sa	*Ma*	Go	.....	(3)
			Sa	*Ga*	Go	.....	(4)
Descending :	Direct		Sa¹	*Da*	Do	.....	(5)
	Oblique		Sa¹	*Pa*	Do	.....	(6)
			Sa¹	*Pa*	Da	.....	(7)
			Sa¹	*Do*	Da	.....	(8)
Tetrachordal, Ascending :	Direct		Sa	*Go*	Ma	.....	(9)
			Sa	*Ga*	Ma	.....	(10)
	Oblique		Sa	*Pa*	Ma	.....	(11)
Descending :	Direct		Sa¹	*Da*	Pa	.....	(12)
			Sa¹	*Do*	Pa	.....	(13)
	Oblique		Sa¹	*Ma*	Pa	.....	(14)
Pentachordal, Ascending :	Direct		Sa	*Ma*	Pa	.....	(15)
	Oblique		Sa	*Do*	Pa	.....	(16)
			Sa	*Da*	Pa	.....	(17)
Descending :	Direct		Sa¹	*Pa*	Ma	.....	(18)
	Oblique		Sa¹	*Ga*	Ma	.....	(19)
			Sa¹	*Go*	Ma	.....	(20)
Hexachordal Ascending :	Direct		Sa	*Pa*	Do	.....	(21)
			Sa	*Pa*	Da	.....	(22)
			Sa	*Do*	Da	.....	(23)
	Oblique		Sa	*Da*	Do	.....	(24)
Descending :	Direct		Sa¹	*Ma*	Ga	.....	(25)
			Sa¹	*Ma*	Go	.....	(26)
			Sa¹	*Ga*	Go	.....	(27)
	Oblique		Sa¹	*Go*	Ga	.....	(28)

The first and the third notes in each of these Cadence-Norms are the Vādî and the Nyāsa respectively and the italicized second note is the Upānta Swara.

(f). Different forms of a Cadence-Norm : A Trichordal, a Tetrachordal, a Pentachrodal and a Hexachordal Cadence-Norm may be situated in six, five, four and three positions respectively in the Mode-octaves, and thus undergo the same numbers of transformations. The total numbers of these Cadence-Norms are, therefore, forty-eight (8 × 6), thirty (6 × 5). twenty-four (6 × 4) and twenty-four (8 × 3) respectively. There may, thus, be altogether one hundred and twenty-six possible Cadence-Norms. The different positions of ascending Cadence-Norms in Mode-octaves are to be counted upwards from Sa of the mid-octave and those of descending Norms are to be counted downwards from Sa^1 of the upper octave. The forms which these Norms take in these positions are to be numbered (a), (b), (c), (d), (e) or (f) in the ascending or descending order as the case may be. For example, the descending Norm Pa Ra Sa, on which the Rāga Tāna of Āsāvari is based, is to be numbered 18 (d), the fourth position in descent of Norm No. 18 (Sa^1 Pa Ma) counted downwards from Sa^1. The three notes constituting a Cadence-Norm are essential for a Cadence Phrase. Other notes consonant to either the Vādî or the Nyāsa can be added to the three essential notes in order to construct various perfect Cadence Phrases. Innumerable Cadence Phrases can thus be constructed from different Modes of different Scales. These can be used as the concluding Characteristic Phrases which distinguish different Rāgas from one another.

(g). Minor Third in cadence : The Upānta Svara and the Nyāsa of the eight Cadence-Norms Nos. (3), (6), (7), (10), (15), (18), (20) and (24) are separated by a Minor Tone. This interval occurs between the Minor Third and the Fourth and also between the Fifth and the Major Sixth, either above or below the Vādî. The Major Third and the Minor Sixth of the Vādî are situated within these Minor Tone intervals. The Minor Third and the Fifth, therefore, naturally lead to the

Major Third and the Minor Sixth of the Vādī. Some difficulty is, consequently, felt in passing from the Minor Third and the Fifth directly to the Fourth and the Major Sixth respectively, skipping over the Major Third and the Minor Sixth. In Chromatic Scales the Minor Tone is obliterated by actually putting the intermediate notes as substantive notes of the Scales, and thus using both the Thirds or both the Sixths one after another in the same progression. In modern harmonic music of Europe the Minor Tone is totally avoided in cadences. The Third above the Dominant must, as a rule, be a Major Third in a Harmonic Cadence, which is invariably ascending and tetrachordal. This rule has led to the elimination of all Ecclesiastical Modes which have a Minor Third above the Dominant, the Minor Third in these Scales being sharpened to a Major Third[6]. But, there is neither any scientific nor

6. The decay of the medieval modal system is attributable mainly to two factors : the theory of Fundamental Bass and the supposed unfitness of the Minor Third above the Dominant to serve as a leading note to the Tonic. According to the aforesaid theory the Dominant in the penultimate chord must be placed in the bass part. The cadence must consequently be of an ascending character and the melody must be placed in the soprano part and conclude with the Tonic. The second factor necessitated that the seventh note of a Scale must be a Major Third above the Fifth (Dominant). Consequently, in those Modes, which had a Minor Third above the Dominant, it had to be sharpened by a Semitone. The character of these Scales were thus completely changed. The four Ecclesiactical Modes which correspond with the first four Primary Scales are : the Ionic ($C-C^1$), the Mixolydian ($G-G^1$) the Dorian ($D-D^1$), and the Aeolian ($A-A^1$). The Ionic Mode has survived as the modern Major Scale. The seventh notes of the other three Modes are Minor Thirds above their Dominants. By sharpening this note by a Semitone the Mixolydian Mode became converted into the Ionic Mode i.e., to say the Major Scale ; the Dorian Mode was converted into the Secondary First Scale and the Aeolian Mode became the Secondary Second Scale. These Secondary Scales had no place in the medieval modal system, which was thus practically lost to modern European music.

Rev. W. H. Frere in his article on "Modes, the Ecclesiastical" in Grove's "Dictionary of Music and Muscians" (Vol. III, p. 223) rightly deplores the loss of many beautiful melodies

any æsthetic reason, except the difficulty mentioned above, why the aforesaid cadences with the Minor Third cannot be used in melody by musical experts.

D. PENULTIMATE PHRASE (UPĀNTA TĀNA).

(a). Conclusive and inclusive Cadence : The distinction between the two Characteristic Phrases of a Rāga, Nyāsa Tāna and Upānta Tāna, is based on conclusiveness and inclusiveness of their characters. A phrase which is conclusive is used as a Nyāsa Tāna ; while a phrase, which leaves an expectation for another phrase to follow it, is used as an Upānta Tāna. These characters of phrases are determined by the Thirds above or below their starting notes. The difficulty in the use of Minor Thirds referred to above has given rise to the distinction of Scales as ascending and descending. Owing to this difficulty only those Scales which have Major Thirds above their Tonics are considered as ascending; and, conversely, only those Scales which have Major Thirds below their Tonics are considered as descending. These characters are also attributed to the Unitary Scales which constitute a full composite Scale and to the phrases which are based on them. The Thirds above or below their starting notes determine these characters. Melodic progression would, however, be impossible if these phrases had to be used either in ascent of in descent exclusively.

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of the medieval period brought about by the inroad of the harmonic system. Here is what he says in the article :

"The period of the rise of harmony is thus the period of the decay of the old tonality and the modal system. The ancient Modes gradually disappeared until only the Major and Minor Modes remain. A good deal of richness in melodic beauty was sacrificed in the process, and modern melody even with all its chromatic freedom, has not such a wide range of variety as the old modal system afforded. No one will doubt that the gains in harmony more than compensated the losses in melody, *but it must be emphasised that all was not clear gain.*"

The italics are ours. The above remarks should serve as a warning to those who are over-zealous to have Indian melody harmonized.

In practice they are used both-ways indiscriminately. The only effect of these characters is that ascending and descending phrases are deemed conclusive in ascent and descent and inconclusive in descent and ascent. It follows from what has been stated above that a phrase which has a Minor Third above or below its starting note is to be considered inconclusive when used in ascent or in descent respectively. Such phrases as these are almost invariably used as Upānta Tānas of Rāgas.

(b). **Inconclusive cadence how made conclusive :** An inconclusive phrase can, however, be made conclusive and used as a Nyāsa Tāna by putting its Minor Third in the background by oblique use, and bringing the Fourth in it into prominence by an open interval. In a tetrachordal phrase the Minor Third above or below its starting note, which is the penultimate note of the phrase, is used obliquely with the Nyāsa note, thus making the Fourth above or below the starting note prominent by an open interval. For example, in the ascending tetrachordal Nyāsa Tāna of Rāga Mālkaush Ra *Pa Mâ Pa*, the penultimate note Mâ, which is Minor Third above the starting note Ra, is used obliquely with the Nyāsa note Pa, making the interval of Fourth above the starting note (Ra-Pa) open. In a pentachordal phrase the Minor Third above or below its starting note is used obliquely with either that note or the fourth note above or below it, making an open interval of Fourth above or below it. For example, in the descending pentachordal Nyāsa Tāna of Rāga Bibhāsh *Pa Ga Pa* Ra Sa, the Minor Third Ga below the starting note Pa, is used obliquely with it, making the interval of Fourth below it (Pa-Ra) open ; and in the ascending pentachordal Nyāsa Tāna of Prathama Bhimpalāshî Ră Sa Ră *Pă Ma Pă* Da the Minor Third Ma above the starting note Ră is taken obliquely with the fourth note above it Pă, making the interval of Fourth between them (Ră-Pă) open. One of the two Major Third intervals of a hexachordal phrase is kept open in order to make it conclusive. For example, in the ascending hexachordal Nyāsa Tāna of Rāga Khāmbāj Ga Ma Pa Na Sa, the interval of Major Third between Pa and Na is

kept open, overshadowing the effect of the Minor Third Pa above the starting note Ga.

A hexachordal phrase with an open Major Third may be used with conclusive effect both in ascent and in descent. The ascending or the descending character of a Rāga becomes doubtful, if such a phrase is used either in ascent or in descent as the final Characteristic Phrase.

All chromatic phrases are conclusive, as their starting notes have invariably Major Thirds above or below them after the Minor Thirds.

E. AUXILIARY AND COMPLEMENTARY PHRASES (SĀDHAKA AND PURAKA TĀNAS).

Though the combination of the two co-ordinated Characteristic Phrases is the principal feature of a Rāga that alone does not give a complete idea of it. The Vishishta Tānas must be supplemented by a number of other Tānas in order to have the full picture of the Rāga. These may be called Sādhaka Tānas or Auxiliary Phrases. They are ancillary to the two main phrases and must be so constructed as to form a suitable background for them. There is much scope for the formation of Sādhaka Tānas. They need not be Perfect Phrases provided the rules regarding the features of the Rāga are faithfully followed. Particularly, the rules regarding Grāma, Murchhanā and Varjita Svaras must never be violated.

Sādhaka Tānas must not be of so prominent and distinctive character as might over-ride the effect of the Vishishta Tānas. They should be conducive to that effect and should preferably be similar or parallel to these phrases.

In all Rāgas there are two to four Sādhaka Tānas of definite structure, which are confined within the Mode-octaves in which they are sung and are considered essential for giving them full expression. These Tānas must be co-ordinated with the Vishishta Tānas in order to complete the individual character of the Rāga. They have, therefore, been called Puraka Tānas or Complementary Phrases.

Care should be taken that a Sādhaka Tāna of a Rāga does not partake of the character of a Vishishta Tāna of another

Rāga. Combination of Vishishta Tānas of two or more Rāgas gives rise to hybrid melodies, which do not deserve the name of Rāga. The "Mishra Rāga" (mixed Rāga) used by some writers, is a misnomer. Such Rāgas, if any, contradict the fundamental principles of the structure of Rāgas. A Rāga-malā (garland of Rāgas), which is a combination of the Characteristic Phrases of several Rāgas is only an object of curiosity and does not possess much artistic value, inasmuch as none of the Rāgas in it can be presented in its complete form.

Musicians in their eagerness to create variety are apt to improvise Tānas, which obliterate the impression of the original Rāga or even sometimes create the impression of a different Rāga. They subsequently return to the original Rāga and conclude with it. These two processes Bhatkhande calls "Tirobhāva" (disappearance) and "Āvirbhāva" (appearance). Improvisation of phrases unconnected with the Rāga, which may be called Avāntara Tānas or extraneous phrases, may be and is often made by expert musicians with good effect ; but excursion to a different Rāga cannot be artistically justified.

F. PERIODS.

Melodic compositions on Rāgas usually consist of two or more periods. One of these periods is reserved for expressing the character of the Rāga and presenting a complete picture of it. This period is called Āsthāyî in Hindusthānî music and *Pallavi* in south Indian music. The other periods are intended for presenting combinations of various ancillary phrases which partake of notes in the octave above or below the Mode-octave in which the main theme of the Asthayî period of the Rāga is sung. The human voice register generally encompasses about two octaves. The main theme of a Rāga must, however, be confined within a single octave. The natural inclination of a musician is for extending the melody by three or four notes above and below the mid-octave in which the main theme is sung. The higher notes of the voice-register are especially valued. This tendency has given rise to different periods, in which the melody is extended to notes above and below the mid-octave.

Dhrupad, the highest class of classical Hindusthānî music, contains four periods. Of these the period called Āsthāyî shows the main theme of the Rāga, Antarā extends to notes in the upper octave, and Sanchārî extends to notes in the lower octave. The fourth period Ābhoga is only a variant of the Antarā period. The lighter classes Kheyāl, Tappā and Thumri contain only the two periods, Āsthāyî and Antarā. The usual range of the Antarā is an octave above one of the notes in the mid part of the Āsthāyî-octave and that of the Sanchārî is an octave below that note. The starting note of the Antarā or the Sanchārî should be any one of the notes Ma, Pa, Ga, Go, Da and Do. Difficulty is sometimes felt in ascertaining this starting note. The golden rule for ascertaining this note is to find out that Amsa of the Mode which is coincident with one of the above-mentioned six notes consonant to the Mode-Initial Sa. This would differ in different Modes. In the First and the Fourth Modes it would be Pa, in the Second and the Fifth Modes it would be Ma, in the Sixth Mode it would be Ga or Go, in the Third Mode it would be Ga or Go or Da or Do, and in the Seventh Mode it would be Da or Do.

G. MODULATIONS.

Modulation is effected in European music by what is called change of Key. The Dominant (Uttara Amsa) of one Key is converted into the Tonic (Adhara Amsa) of another by sharpening its fourth degree by a Semitone. A different note becomes the Dominant of the new Key. Such modulation is not allowable in Rāga music. First, because change of Key alters one of the two Amsas; and secondly, because a note other than the new chromatic note undergoes change by a comma[7]. Such unperceived change produces ambiguity in the

7. The changes may be shown thus, taking Sa and Pa to stand for C and G :

Key C major—$\overset{*}{\text{Sa}}$ Ra Ga Ma $\overset{*}{\text{Pa}}$ Da Na Sa^1

Key G major—$\overset{*}{\text{Pa}}$ Dâ Na Sa^1 $\overset{*}{\text{Ra}}^1$ Ga^1 Mî^1 Pa^1

tonality of both the original and the new Key and creates false consonaces, which are incompatible with music in just intonation.

Two kinds of modulation are allowable in Rāga music, in both of which two of the Amsas of the original Scale remain unaltered. One of these is effected by starting from a note other than the original Mode-Initial, as in the case of a period other than the Āsthāyî. In this modulation no chromatic alteration of any note is made, but a Mode-octave different from the original Mode-octave is taken as the basis of composition. This may be called "External Modulation."

In the other kind, which may be called "Internal Modulation", the original Mode-octave is not altered, but one of the notes undergoes chromatic alteration by a Semitone. It has been termed "Conversion" in some preceding chapters. Conversion is made frequently in Primary and Secondary Scales, but seldom in Chromatic Scales. We have seen in the chapters on Scales that Primary and Secondary Scales can be converted into one another by means of a single chromatic note either sharp or flat. The first four Primary Scales have been so arranged and numbered that every one of them can be converted into the Scale next following it by a flat note and into the Scale next preceding it by a sharp note. In almost all these conversions the Adhara and the Uttara Amsas both remain unaltered. The conversions of the First and the Fourth Primary Scales into one another have the

The note Da is imperceptibly sharpened by a comma besides Ma which is perceptibly sharpened by a Semitone.

The correct new Key in just intonation would be E Minor. Thus :—

Key E Minor— $\overset{*}{\text{Ga}}$ Mî Pa Da $\overset{*}{\text{Na}}$ Sa^1 Ra^1 Ga^1

This change of Key is what we have called conversion of Primary First Scale to Primary Fourth Scale by a single sharp note. In it the Tonic is Ga and the Dominant is Na, which are both different from those of the original Key. Ga, which was the Madhya Amsa of the original Key becomes the Adhara Amsa of the new Key ; and Pa which was Uttara Amsa of the original Key becomes Madhya Amsa of the New Key.

exceptional feature that in them both the aforesaid Amsas cease to function as such and give place to two other notes.[8] The other Scales into which a certain Scale can be converted and the converting notes have been shown in the Mode Tables. The converting notes of different Modes of the same Scale must necessarily be different.

When a flat chromatic note is used together with the original note, it must be used only in descent. the latter note being used in ascent. Conversely, a sharp chromatic note must be used only in ascent. This is analogous to the Antara note of the ancient Indian music, which was also always used in ascent.

8. Vide last preceding foot-note (no. 7)

CHAPTER XIV.

DETERMINATION OF CHARACTER OF RĀGAS.

A. PRINCIPLES OF STRUCTURE OF RĀGAS.

The descriptions of Rāgas found in treatises on Indian music are neither full nor perspicuous. Inaccuracies and inconsistencies, inevitable in unscientific treatment, are quite abundant. Best specimens of existing classical compositions of Rāgas have to be rationally and scientifically analysed in order to find out the true character of Rāgas. For that purpose the principles underlying the structure of Rāgas must be clearly kept in view.

(a). **First principle** : The first of these principles is that a Rāga must be composed of notes which are held together by relationships of consonance with either of two fundamental notes. In other words, a Rāga must be based on one of the several Grāmas or Scales, which have been shown to be all constructed on consonant relationships of notes. There are no doubt some Rāgas, in which modulation to a different Scale is made by altering a single note of the original Scale. In these Rāgas too only one of the Scales is used in ascent and the other only in descent. In many of such Rāgas the new note is used only chromatically and is not indispensable. If the new note is used substantively the Rāga must be considered to be based on either the ascending or the descending Scale according to the ascending or the descending character of the Rāga, which is determined by its Nyāsa Tāna (concluding phrase). How difference in tonality of apparently similar Scales changes the character of Rāgas is best illustrated by the various Rāgas, which are based on a single Mela belonging to Primary Scales. Thus, the No-Go Mela may give rise to four different kinds of Rāgas, because this Mela may belong to any one of the four Primary Scales, in which the mutual relationships of some of

the notes differ from each other, though in popular notation the notes of these Rāgas look quite alike. The relationships of the notes of a particular Scale are determined by reference to its two central notes, the Amsas or Tonics. The four Scales to which a Primary Mela can be affiliated differ from each other in either one or both of their Tonics, and Rāgas based on them are distinguished by these Tonics. For example, Rāga Bāgeshrî based on No-Go Mela has Sa and Ma as its Amsas and so belongs to Primary Second Scale ; and Rāga Sāhānā based on the same Mela has Sa and Pa as its Amsas and so belongs to Primary Third Scale. In Just Notation the second and the seventh notes of these Rāgas differ by the ordinarily indiscernible interval called Anushruti or Nonatone. The inter-relationships of notes of a Mela, therefore, change with the Amsas. Reference to the two Amsas must be constantly made in order to ascertain the relationships between the notes of a Mela used in a Rāga.

(b). Second principle : The second principle underlying the structure of Rāgas is that the notes constituting a Rāga must be confined within the limits of a single octave. We have seen that the local relationships of notes are different in the seven possible octaves of the same Scale. This aspect of a Scale, called "Modality", gives rise to seven different varieties of Rāgas based on the same Scale. Herein lies the significance and importance of Modes or Murchhanās. The difference in the Murchhanās of the same Scale cannot be clearly understood unless the starting notes of all of them are brought to the same pitch. This necessitated the introduction of what have been called Common-Initial Modes. This need was partially met in Indian Music by the Mela system, which was introduced about the fifteenth century A.D. This system would lose its significance if the Melas were made to start from different Initial Notes. Sa is universally recognised as the Ādi Svara or Initial Note of all Melas. Use sometimes made of other notes as Initials frustrates the very purpose of the Mela system and has been the source of much confusion in ascertaining the character of Rāgas.

(c). **Third principle :** The third and the most important principle underlying the structure of Rāgas is that relating to the special significance of the relationship of the Third, and consequently also of the Sixth, to the Amsas. In fact, distinction between Rāgas is based mainly on the character of the Thirds above or below their Amsas. In this respect the Anuvādî relationships of Thirds and Sixths hold much more important positions in the melodic art than the Samvādî relationships of Fourths and Fifths. Similar unique position of the Thirds and the Sixths is also to be found in the harmonic art of Europe in which consecutive Fourths and Fifths are prohibited, but not consecutive Thirds and Sixths. This importance of Thirds and Sixths both in melody and in harmony follows as a natural consequence of the principles underlying the structure of Scales. It has been shewn in the chapter on the structure of Scales that the two Tonics of a Scale together with the Fifths above and below them constitute, as it were, the steel-frame which is common to all Scales, barring the Tetrachordal Scales, which are of lesser importance and based on other principles. The four notes of this steel-frame do not, therefore, take any part in creating variety in Scales of Rāgas. It will be observed from the Heptads of the Scales that the three notes intervening their four fixed notes are Thirds to be notes above and below them. These are changeable notes, which may be either Major or Minor Thirds to the notes above or below them. These three changeable notes are responsible for creating all the difference that exists between one Scale and another[1]. It is these three notes which are also responsible for creating variety in Rāgas which are based on these Scales.

Owing to the essential character of Thirds in the structure of Rāgas, it is of the utmost importance that their distinctive

1. This importance of Thirds has given rise to the classification of Scales into Major and Minor Scales in European music according to the character of the Third above the Tonic (i.e., the Lower Tonic). But, as the Dominant is also to be considered as a Tonic (Upper Tonic) and as Scales are distinguished by the Thirds both above and below the two Tonics, such a classification is not possible in Indian music.

Thirds should be brought to prominence. This can be best done by keeping these intervals open. Nature has so constructed the Scales that either the interval between the Lower Tonic and the Third above it or that between the Upper Tonic and the Third below it must be kept open. These two Thirds to the Tonics are themselves false Thirds to each other. This false relationship must be avoided by omitting one of the two notes. This demand of nature has, as shown above, given rise to the Transilient Scales. In Scales of ascending character the Third above the Lower Tonic and in those of descending character that below the Upper Tonic are kept open. To produce the best effect these open Thirds should be taken by Meed. This is done by gliding to the Third, i.e., to say, by passing through all the tones between the two notes. This is one of the most beautiful embellishments used in Indian music. Another means of creating variety in Rāgas has been invented by Indian musicians on the basis of these two kinds of Thirds. This consists in using both the Thirds together. The Chromatic Scales, which are peculiar to India, owe their origin to this invention. In these Scales the note above or below a Tonic of the original Scales is left out and another Third is substituted for it, thus keeping the number of notes of a Scale constantly seven[2]. These Scales are, therefore, almost always used as full Scales. Thus, we find that there are three means of creating variety in Rāgas viz, use of the Major Third, use of the Minor Third and use of both these Thirds together, above or below a Tonic.

(d). **Fourth principle:** The fourth principle on which Rāgas are constructed is that certain dissonant intervals must be considered to be of as much importance in their structure as the consonant ones. We have seen that melodic phrases are based on Triads which consist of both consonant and dissonant intervals. These have been called Melodic Triads, in order

2. It may be observed here that, though Rāgas based on some of the Simple Scales can be harmonized, it is quite impossible to harmonize those based on Chromatic Scales, on account of these double Thirds.

to distinguish them from Harmonic Triads, which consist of only consonant intervals. In these Triads the last two notes are dissonant to each other, but consonant to the starting note. Every perfect melodic phrase, which is based on one of these Triads, must, therefore, conclude with two notes which are dissonant to each other. The last and the penultimate notes of a Perfect Phrase have been called its Nyāsa and Upānta Svaras respectively.

(e). **Fifth principle :** The fifth principle followed in the structure of Rāga is that the concluding notes of the constituent phrases of a Rāga and also those of sections and periods of compositions based on it must be brought to prominence, and that co-ordination of these phrases, sections and periods must be effected by connecting their concluding notes by bonds of consonant relationships. The best of these bonds are the two relationships of perfect consonance (Samvāda), viz., the Fourth and the Fifth. The effect of co-ordination is felt most powerfully in that of its last two phrases, which respond to each other by means of their concluding notes called the Nyāsa and the Apanyāsa and constitute the nucleus of the whole structure of the Rāga. The concluding notes of all phrases, sections and periods should be related to either the Nyāsa or the Apanyāsa.

B. INDIVIDUALITY OF RĀGAS.

The Characteristic Features of Rāgas described in the last preceding chapter are mainly based on the principles laid down above. While tracing the development of the conception of Rāgas we have seen that the trend of that development has been towards imparting to a Rāga an individuality, which is capable of distinguishing that Rāga from all other Rāgas. This individuality, however, is not that of fixed tunes, which we meet with in Poetic Songs and folk-songs of popular music in all countries. It is of such nature as allows ample scope to artists for showing their talents in introducing variations. Yet their individuality is so marked that it prompted some medieval writers of the Northern School to depict them as

demi-gods and demi-goddesses. This similitude is significant and very helpful in understanding the character of Rāgas. A Rāga can be recognized even if it appears in different rhythms, or with different embellishments or with different variations or in different styles of expression, just as a human being can be recognized even if he appears in different poses, or with different dresses or ornaments, or with different motions. The similitude can be almost completed by likening a particular part of a Rāga to the face of a human being and the other parts to his limbs. The Charactersitic Phrase, which concludes a Rāga, may be likened to the face and the other phrases to the limbs of a man. Just as a man can be recognized from his uncovered face, however much other parts of his body are obscured by dress or ornament, a Rāga can be recognized if only its concluding Characteristic Phrase is clearly perceived, however much its other phrases are burdened with variations and embellishments. It is, therefore, of the utmost importance that the final Characteristic Phrase of a Rāga should have a definite pattern based on correct and scientific relationships of notes. In other words, it must be a Perfect Phrase, as explained in the last preceding chapter. Every Rāga has two Characteristic Phrases one being ascending and the other descending in character. The final phrase, called the Nyāsa Tāna or Cadence Phrase, is more important of the two, inasmuch as the distinctive character of a Rāga mainly depends on it. The first and the most important step in recognizing the individuality of a Rāga is, therefore, to find out its Nyāsa Tāna. Whether the final phrase of a Rāga is ascending or descending in character can usually be ascertained from the part of the day which is considered to be appropriate for the Rāga according to the time theory.

C. TIME THEORY.

The almost universally recognized and strictly followed theory regarding the appropriate time for singing particular Rāgas in Hindusthānî music appears to be based mainly on the psychological effect of light of the sun on

the human mind. The theory regarding season, which is of very limited use, is based on the effect of weather or atmospherical condition. The whole day of twenty-four hours can be divided into different periods according to light, darkness and twilight, which have different effects on the human mind, as indicated in the last preceding chapter. The day is ordinarily divided into eight periods of three hours each called *praharas*. The second and the third *praharas* of day and night, being time for work and sleep may be left out of account. So, practically there are only four *praharas* suitable for music. Of these the *praharas* following sunrise and that preceding sunset are most remarkable for their influence on the human mind. The first of these periods characterized by the mild and slowly brightening rays of the rising sun produces a joyous mood hopeful of a bright future free from care and anxiety ; and the second characterized by the mild and slowly waning light of the setting sun produces a gloomy mood anxious about an unknown dark future and also a sense of repose after a busy day. The Rāgas prescribed for these two periods are most marked in their structural character. The two twilight periods just preceding sunrise and following sunset partake of some of the features of the periods next following and next preceding them. Rāgas of similar structure are found to be prescribed for these contiguous periods. The evening twilight is also characterised by a sense of awe and reverence for an unknown power and produces a prayerful mood. A similar but hopeful mood characterises the morning twilight. These twilight periods are of short duration not exceeding about an hour. The period of two *praharas* or six hours of midday is usually the time for work for earning means of livelihood, and is incapable of producing any psychological effect of an æsthetic character The only Rāgas rather apologetically prescribed for this period are those belonging to the Sāranga group, which being unable to produce any particular seasonal effect may be sung in any part of the day. By far the greatest number of Rāgas are prescribed for the hours preceding mid-night. This is quite

natural, because, leisure, freedom from care and stillness of night are best calculated to produce the musical mood of mind. The broad distinction between Rāgas of day and night is that the former are of desending and the latter are of ascending character. The Rāgas of morning and afternoon are quite distinguishable from all other Rāgas by their peculiar descending character. Most of the Rāgas of night are of ascending character. Some Rāgas, which are neither prominently ascending or descending in character and which may be sung in any part of the day, are found to be included in the list of Rāgas prescribed for night. Rāgas of afternoon and most of Rāgas of morning have the feature that their Cadence Phrases (Nyāsa Tāna) end with a Semitone. Difference between Rāgas of morning and afternoon is found to be determined by the size of this concluding Semitone. It is a Minor Semitone of five Nonatones (ratio $\frac{16}{15}$) in Rāgas of morning and a Small Semitone of three Nonatones (ratio $\frac{25}{24}$) in those of afternoon. The size of the Semitone depends on the character of the concluding phrase. If the phrase is Tetrachordal or Minor Hexachordal it is a Minor Semitone, e.g. Ma Rŏ Sa or Do Rŏ Sa (the Semitone is marked by a brace overhead). If the phrase is Chromatic Trichordal or Chromatic Major Hexachordal it is a Small Semitone, e.g., Ga Si Sa or Da Si Sa. Example of morning Rāga with the skeleton concluding phrase Ma Rŏ Sa is Bhairavî, and that of morning Rāga with the skeleton concluding phrase Do Rŏ Sa is Darbārî Todî. Example of afternoon Rāga with the skeleton concluding phrase Ga Si Sa is Puravî. Descending Rāgas ending with Minor Semitone are meant for the earliest part of morning. Those ending with Minor or Major Tone are prescribed for late hours of morning. A descending Tetrachordal phrase having a Minor Third below the starting note ends with a Minor Tone, e.g. Ma Ră Sa. The two phrases Ma Rŏ Sa and Ma Ră Sa are combined together to constitute the Chromatic phrase Ma Ră Rŏ Sa, which is especially suited for the twilight hour just before sun-rise.

It is the Cadence Phrase of Rāgas Prāchya Lalita and Sohinî. Rāgas ending with a Major Tone come after those ending with a Minor Tone. This is the concluding interval of descending pentachordal phrases, e.g. Pa Ra Sa. It is the skeleton of the Cadence Phrases of Rāgas Bibhāsh and Āsāvarî. It has to be pointed out that the descending character of a Rāga is most clearly discernible when the Cadence Phrase either ends with the Mode-Initial (Sa) or starts with its octave (Sa^1). Conversely, the ascending character of a Rāga is most clearly discernible when the Cadence Phrase either starts with the Mode-Initial (Sa) or ends with its octave (Sa^1). Rāgas having Cadence Phrases, which do not start or end with the Mode-Initial or its octave, may be sung in any part of day or night, as neither ascending nor descending character is prominent in them. Of morning Rāgas those having Cadence Phrases which start with the octave of the Mode-Initial (Sa^1) are to be sung in the last hour of the morning *prahara* or the hour following it. Example of such a Rāga is Jaunpurî. The evening Rāgas can be arranged in an order similar to that of morning Rāgas. But, the order must be reverse. Thus, Rāgas with Cadence Phrases starting with the Mode-Initial (Sa) should come first: for example, Rāgas Kedāra and Iman. Those ending with the octave of the Mode-Initial (Sa^1) which produce the greatest feeling of separation or anxiety or mystry are to come last; for example, Ādānā, Bāhār and Khāmbāj.

It may sometimes be found to be difficult to ascertain whether a Rāga is of day or of night character. This difficulty arises in those Rāgas, which can be concluded either with the ascending or with the descending Characteristic Phrase. For instance, it is said that Rāga Bhairavî, which is universally admitted to be a morning Rāga, may be sung in any part of day or night.

D. OTHER MEANS OF ASCERTAINING THE CHARACTER OF A RĀGA.

(a). Materials required: The initial indispensable requirement for determination of character of Rāgas is a sufficient number of authentic records of classical compositions,

which are the only materials on which we can rely for the purpose of ascertaining the character of Rāgas. It is a well-known fact that musicians of India were never in the habit of putting their music in writing and with hereditary jealousy attempted to confine their musical lore within the limits of their own *gharānās*. Compositions were transmitted orally from generation to generation, memory being the only means of their preservation. The consequence was that the same compositon came to differ widely in different *gharānās* both in their notes and in their words. So, though there are good many compositions ascribed to such great masters as Tānasena, Baiju Baorā, Gopal Naik and others, we cannot say that these compositions exist in their original forms. The difference has often become so conspicuous that conflict has grown up among different Gharānās regarding the name or the structure of many Rāgas. A remarkable instance is the famous ancient Rāga Vasanta. There are two forms of this Rāga, as it is sung at present, one of which is sung mainly in Bengal and the other mainly in the western provinces of India. These two forms are quite distinct from each other. We have, therefore, called one of them Prāchya Vasanta in order to distinguish it from the other, which we have called Pāschātya Vasanta. They are based on different Scales of the Chromatic Groups. This difference is fundamental and cannot be explained merely by changes effected in the process of transmission in the different *gharānās*. It is futile to quarrel now over the correct original form of the Rāga. Whatever their origin, they must now be accepted as different forms of the Rāga, if both of them are found to be constructed on correct scientific principles. Difference of another order is found in the structure of that Rāga as it is sung in western India. The third note (G) of the Mode as used in the Rāga by musicians of the *gharānā* of Tānasena is different from that used by musicians of other *gharānās*. The note used by the *gharānā* of Tānasena has been found to be scientifically correct and not that used by others [3].

3. Vide H. S. P. Vol. III, p. 285 and also the foot-notes

From the instance cited above it will be evident that the only course which can be reasonably followed in case of such difference of views among *gharānās* is to accept all forms of Rāgas which will be found to be correct in structure and to give them, if necessary, different names or same names with different qualifications if they are found to be analogous in their structure ; and to reject all forms which will be found to be wrong in structure unless they can be corrected by necessary modification.

In view of the condition of Hindusthānî music indicated above, the first pre-requisite for a scientific study of the structure of Indian Rāgas is procurement of a sufficient number of recorded classical compositions orally preserved by the ancient *gharānās*. The task of recording these compositions was taken up only a little over half a century ago by some enlightened musicians of the provinces of Bombay and Bengal. Lovers of Indian music will be eternally grateful to those bold pioneers in this field, who shook off the hereditary attitude of jealousy and brought out the ancient compositions for the benefit of the musical public. We have now in print a fairly sufficient number of classical compositions, many of which, if judiciously selected, can be taken up for analysis in order to understand the structure of Rāgas[4]. We must, however,

under the two Vasanta Rāgas in the seventeenth chapter of this treatise.

4. The earliest contributions in recorded music were made in the seventies and eighties of the nineteenth century, by some Bengal musicians headed by Kshetra Mohan Goswami under the patronage of Raja Sourindra Mohan Tagore, who inaugurated a revival of musical study on modern lines in the city of Calcutta. A musician himself and a connoisseur of Indian music, Sourindra Mohan wrote several works in English and published a number of contributions made by some Europeans towards throwing light on the character of Indian music. The most notable work done by him was to convene with the help of the renowned musician Lachmi Chand Misra a conference of notable musicians of northern India for settlement of some knotty problems of the Rāga system. The results of the deliberations of this conference were embodied in the Bengali work called "Sangîta Sāra" written

never forget that these compositions were transmitted orally through several centuries and that, consequently, we can never be sure that thay have retained their original shapes. It should also be pointed out that the amount of ability and carefulness required for putting music in writing is not always in evidence in the recorders. The systems of notation used, moreover, are often not quite satisfactory and vary with almost every writer.

by Kshetra Mohan Goswami, a renowned pupil of Lachhmi Chand, in which an attempt was made for the the first time to put in writing the structure of a large number of Rāgas by means of a notation which was the earliest of its kind in India A book named "Yantra Kshetra Dîpikā" containing notations of compositions of instrumental music in a large number of Rāgas was subsequently published in 1873 by the Raja with the assistance of Kshetra Mohan Goswami. The first work on classical compositions in vocal music was published some time later by Kshetra Mohan Goswami with the title "Kantha Kaumudî" in Bengali which contained 36 Dhrupad songs. A valuable work called "Gîta Sutra Sāra" in two volumes was published in the years 1885 and 1886 by Krishna Dhan Banerjee, Court musician of Cooch Behar Raj. This book embodied a large number of classical compositions including 103 Dhrupad songs. In the first part of his book the author tried to explain the theory of Hindusthānî music and made a laudable attempt to throw light on many controversial matters, but being unable to push his scientific enquiry to its logical conclusions, failed to give satisfactory explanation on some important points. About twenty years later a very laudable contribution to the store of recorded classical compositions was made in 1907 by the Bengal musician Ram Prasanna Banerjee. In his "Sangîta Manjarî" he published notations of about 300 Hindusthānî songs, including 222 Dhrupad and 45 Kheyal songs. The Dhrupads include 27 compositions made by the great Tānasena of hallowed memory at the end of sixteenth century A D. and also a few compositions attributed to Baiju Bāorā and Nāyaka Gopāla, two most renowned musicians of the thirteenth century. In the year 1909 his younger brother Gopeswar Banerji published the first volume of his valuable book named "Sangita Chandrikā" which embodied notations of 82 Dhrupad songs. The second and larger volume which was published eight years later, contained 235 songs including 160 Dhrupad and 55 Kheyal songs.

It will be observed that the character of a Rāga is neither fully nor equally brought out in all existing compositions of that Rāga. For some reason or other the character of a Rāga will be found to be rather obscure in many of the current compositions. Care should, therefore, be taken to select for analysis only the good compositions, in which the character of the Rāga is fairly well preserved. Compositions of the great masters should, if available, be given the first preferencce.

These two brothers are the worthy sons of the illustrious Ananta Lall Banerji, a great exponent of the Vishnupur school of music of Bengal. The works of these two authors embody altogether 464 Dhrupad songs, of which about 50 are ascribed to the great Tānasena. By publishing these invaluable Dhrupads and thus saving them from oblivion these authors have earned the eternal gratitude of all lovers of Hindusthānî music.

The next writer in the field of musical theory was Vishnu Narayan Bhatkhande, B.A., LL B, of Poona in Bombay province. In his voluminous work in Marathi entitled "Hindusthānî Sangîta Paddhati" (in four volumes, the last of which was published in 1932) he covered a wide field of musical theory. Having a wonderful mastery over the existing facts of modern Hindusthānî music, he had the boldness to deal with almost all the extant Rāgas of Northern India His explanation of the Rāgas, which followed rather too strictly the traditional conceptions of musical theory, are quite valuable in their own way. But, unfortunately, his enquiries did not proceed on the scientific principles which must underlie all sound musical theory ; and consequently his explanations were not based on the consonant and dissonant relationships of notes, which are the only rock-foundations of all truly artistic musical structure.

His exposition has necessarily become rather verbose and circuitous and not always quite convincing. Following the traditional way he embodied the results of his investigations in a Sanskrit work in verse entitled "Shrimallakshya Sangîtam" published in 1910 under the *nom de plume* "Chatura Pandita". Such a work is not likely to be very useful to modern students of music. His Marathi work in four volume mentioned above were, as he tells us, written by way of commentary on this Sanskrit work. His greatest service to the cause of Indian music was the publication of the work entitled "Kramika Pustaka Mālikā" in six volumes containing compositions of vocal Hindusthānî music. In the preface to the fourth volume the publisher informs us that the songs published in this work

(b). Two phrases most prominent : Melodies all over the world are essentially combinations of small musical phrases more or less complete in themselves. The more the melodies are developed the more the component phrases are found to be constructed on correct scientific principles. The highest development in this direction is to be found in Rāga melodies. The great distinction between a Rāga melody and all other melodies is that while in the latter all the component phrases are of

were put in writing by Bhatkhande after having learnt them from eighteen famous musicians belonging to well-known Gharānās of Western India including those of Rampur, Gwalior, and Jaipur. The Karmika books contain about 1800 compositions. Of these about 1300 songs, based on 45 well-known Rāgas were published in the first four volumes (from about 1920 to 1923). The remaining 500 songs based on 136 rarely used Rāgas were embodied in the last two volumes published in 1937 after his demise in 1936. Names of composers of songs are nowhere mentioned in these books.

It should be observed here that there is a marked difference in the structure of some of the Rāgas as they are sung in Western India and described in the works of Bhatkhande and Rāgas of the same names as sung in Bengal and described in the works of the Bengal authors mentioned above. These authors represent a school of Hindusthānî music which had its centre at Vishnupur in the district of Bankura of Bengal. This school was founded by Bahadur Khan, ninth in descent from the great Tānasena. On the downfall of the Moghul empire, when the descendants of Tānasena left the imperial court and spread all over India, Bahadur Khan was invited to his court by the Raja of Vishnupur, Raghunath Singh, the second, in the first quarter of the eighteenth century. This historical fact is embodied in a song composed by Bahadur Khan himself, published in "Sangîta Manjarî" (second edition, p. 469). The tradition of Tānasena appears to have been fairly well preserved by the *gharānā* of Bengal musicians established by Bahadur Khan. This tradition was that of the austere Dhrupad style in which all the great masters sang. This style received a set-back sometime after the death of Tānasena by the disappearance of the patronage of the Moghul court, and by the growing popularity of the rather light Kheyal style. The rightly valued freedom of this style unfortunately degenerated into licence with the inevitable consequence that many good old Rāgas lost their pristine purity and beauty, which were sacrificed at the alter of personal vanity by the eagerness

almost equal importance, so that the mind is not attracted to any particular part of the melody, in the former the aim always is to attract the mind to two phrases of intrinsic beauty and to make the other phrases subservient to them serving, at it were, as a suitable background for them. As these phrases possess peculiar flavour and distinguish the Rāga from other Rāgas, we

of Kheyal singers to display their cleverness in improvisation of Tānas. Bhatkhande tells us from his long personal experience that these musicians are in the habit of altering the original notes of compositions for the sake of convenience in improvising Tānas. Under these circumstances, we must rely mainly on Dhrupad songs, which, owing to their rigidity, do not allow of any alteration of the original notes. The waning popularity of the Dhrupad style, which is a serious menace to the preservation of the purity of the ancient Rāgas, is evidenced by the small proportion of Dhrupad songs, which, not being separately mentioned, have to be sought out from the voluminous works of Bhatkande. That these volumes were intended for publishing mainly Kheyal songs will be evident from the statements made by Bhatkhande himself in his letter to Rev. H. A. Popley dated the 4th April 1929, published in the proceedings of the meetings of the Music Conference called by the Director of Public Instruction, Bengal, to advise him about the introduction of Indian music in Secondary Schools. In that letter he speaks about more than 700 songs in his own notation contained in three volumes of his "Kramika" books and recommends them for students of Secondary Schools. Most of these songs are in the Kheyal style. About Dhrupad songs he makes the following statement :—

> "I am told Dhrupad and Dhāmārs are very popular on that side and in that case the committee may select those songs from any of the first class Bengali publications available there".

These Bengali publications contain more than 600 Dhrupad songs, which include many songs of the ancient masters, more than sixty of them being compositions of the great Tānasena.

It should be particularly mentioned here that at least six excellent ancient Rāgas, which appear to have been almost lost in western India, are found amongst these Dhrupad songs and are still sung by Bengal musicians. These are : Prāchya Vasanta, Prāchya Lalita, Bibhāsh, Mallāra, Puravî and Surat.

Musicians all over India who heartily wish the advancement of their own art, should remember that memory is an unsafe guide and try to put in writing all ancient classical songs before they are completely lost or are further deteriorated.

have called them Vishishta Tānas (Characteristic Phrases) or Rāga Tānas. These two phrases are so constructed that they stand out in the midst of all the other phrases, drawing the mind back to them over and over again, and thus concentrating it upon them, leave on it a deep impression, which lingers in the memory long after the melody is heard.

(c). Concluding phrase determines tonality : Of these two phrases that which concludes the Rāga and is calculated to produce the greatest mental effect, is of great help in ascertaining the structure of the Scale on which the Rāga is based. The last note of this concluding phrase of a Rāga, which is called the Nyāsa is, in a good rhythmic composition of the Rāga, so placed that it synchronizes, as pointed out in the last preceding chapter, with the last stroke of Dha or super-strong accent on the accompanying drum and produces a powerful effect on the mind of the listener. In a concluding phrase which is either Pentachordal or Tetrachordal the final note is one of the Amsas of the Scale on which the Rāga is based. This note should be made the starting point of analysis of the Rāga. The first note of the concluding phrase, which is the other Amsa of the Scale, is called the Vādî of the Rāga. The tonality of the Scale can be ascertained from these two notes the Vādî and the Nyāsa. They will be often found to be identical with the two notes mentioned as Vādî and Samvādî in books on Hindusthānî music. The concluding phrase of a Rāga, which starts and ends with the two central notes or Amsas of a Scale, is analogous to the cadence or final chord of European music, which includes the two central notes of the Scale, called the Tonic and the Dominant.

(d). The Mela-Initial tuned to the speaking voice : It must be pointed out here that authors sometimes differ widely in their opinions about the Vādî and the (so-called) Samvādî notes of Rāgas. Their statements in this respect should, therefore, be taken very cautiously. The greatest mischief has been done by those writers who have either doubted or rejected the fitness of the Mela-Initial Sa to be regarded as either the Vādî or the Samvādî note of a Rāga. Their argument in support of

their view is that Sa is equally important for all Rāgas. This ground should have rather led them to the conclusion that Sa is either the Vādî or the Samvādî note of all Rāgas[5]. There is no doubt that the note Sa has to perform a most important function in the modern Mela System as the Initial of the Mode-octave of the Scale which a Mela represents. But, according to the principles underlying the structure of Scales that note cannot be regarded as a central note of all Melas alike. The importance of Sa in the Mela System, which is nothing but a Sa-Initial Modal System, is partly of an æsthetic and partly of a practical character. From the æsthetic point of view the mental effects produced by the Amsas used as the basic notes of a Rāga, viz. Vādî, Apavādî, Nyāsa and Apanyāsa are determined by their relationships with the starting note of the Mela. This relationship may sometimes be that of identity and sometimes that of consonance. In the former case Sa acquires double importance as the Mode-Initial and as a basic note of the Rāga. The Mode-Initial coincides with the Adhara Amsa and with the Uttara Amsa in the First and the Fifth Modes respectively of all Scales. In the Third Modes of the First and the Fourth Primary Scales it coincides with their Madhya Amsa. In all other Modes the Mode-Initial bears only a relationship of consonance with one of the Amsas. From the practical point of view, the importance of Sa as the Initial Note of the Mela representing a Mode arises out of the fact that the easiest way for a musician to ascertain the pitch of a particular note in a Mela-octave is to refer it to the Mela-Initial pitched at his speaking voice. For this purpose the Tānpurā is tuned to the pitch of the speaking voice of the singer and kept continuously sounding in his ears. This practice is only a

5. Krishnadhan Banerjee in his "Geeta Sutra Sāra" Vol. I, has used the aforesaid and other arguments in throwing out the whole theory of Vadî and Samvādî. Gopeshwar Banerji has also taken a wrong view in the matter, although he has not totally discarded the theory of Vādî and Samvādî. This would be evident from the fact that Sa has not been taken as either the Vādî or the Samvādî of any Rāga mentioned in his books.

matter of practical convenience and does not make the Initial Note consonant to all or most of the other notes of the Mode. From these considerations it follows that the custom of tuning a string of the Tānpurā to Pa is often unnecessary and sometimes undesirable and has actually to be abandoned in Rāgas in which it is an omitted note. The scientific method of tuning a Tānpurā has been given at the end of the seventh chapter. In finding out the relationships of the Amsas of a Rāga to Sa it must be remembered that, though Sa has a especial importance as the Mode-Initial, it may not always be an Amsa.

(e). Most Rāgas Hexatonic: The Varjita Svaras of Rāgas mentioned in books or taught by hereditory teachers will be often found to be of great help in ascertaining the tonality the of Scales on which these Rāgas are based. It must, however, be pointed out that by far the largest number of Rāgas is believed to be based on full (Sampurna) Melas. But, we have seen that only the Third Modes of Scales can be used full. All other Modes, which are not Pentatonic (Auduva), are Hexatonic (Shādava). Most of the Rāgas believed to be full are, therefore, in reality Hexatonic. But, in actual practice very few Rāgas are described as Hexatonic. This misconception is to be attributed to the fact that the omitted note of a Hexatonic Rāga can be used in an oblique (vakra) manner and is often so used. For example, Bāgeshrî, which is a Hexatonic Rāga omitting Pa, is usually described as a full Rāga, because Pa is often used in it obliquely. But, it will be observed that the Rāga appears in its best form if this note is omitted altogether. In order, therefore, to know whether the Mela of a Rāga is full we should ascertain whether any note is used obliquely in it. The surest test of a full Mode is that its third and sixth notes are the Amsas.

Table IV of the last preceding chapter will show that most of the Pentatonic Melas can be affiliated to two different Scales. In such cases the Amsas must be ascertained from the Rāga Tāna in order to find out the Scales and the Modes from Tables I and II of the aforesaid chapter. For example, we find that the Rāgas Mallāra (Shuddha) and Durgā

are both based on the Pentatonic No-Mela omitting G and N. The Amsas of this Mela must be either the notes Ma and Sa at the upper ends of the two open Thirds, or the notes Ra and Da at their lower ends. The Rāga Tānas of the two aforesaid Rāgas show that Ma and Sa are the Amsas of Mallāra and Ra and Da those of Durgā. From Tables I and II it will be seen that Mallāra belongs to the Fifth Mode of Primary First Scale and Durgā belongs to the Seventh Mode of Primary Fourth Scale.

Similar difficulty in asceraining the Scales and the Modes of some Hexatonic Ragās will be encountered as will appear from Table III. These can be ascertained in a way similar to that indicated above with the help of Tables I and II.

(f). Two objects of omission : It is rather difficult to ascertain the omitted notes of those Rāgas which ae mistakenly believed to be full. For this purpose the two objects for which notes are omitted must be kept in veiw. One of those objects is compliance with the melodic rule of consonant thirds by avoiding the false Thirds inherent in most of the Simple Scales. Omission in such case is compulsory and unavoidable. The false Third of a Scale, which is included within its component pentachord, can be avoided in two ways by omitting any one of the two notes making the false Third. Thus, the pentachord

Sa Ra Ga Ma Pa may be used in the two transilient forms : Sa × Ga Ma Pa and Sa Ra Ga × Pa. One of the two notes Ra and Ma related as false Thirds, is omitted in either of these two forms. There is a third form in which the pentachord may be used in a phrase without violating the melodic rule of consonant thirds, viz. Sa Ra × Ma Pa. The word "third" beginning with a small letter used in this rule is not identical with the word "Third" beginning with a captital letter, used to indicate the two scientifically consonant relationships represented by the ratios $\frac{5}{4}$ and $\frac{6}{5}$. It merely indicates the actual relative position of two notes in practical use. Thus, in the last-mentioned phrase the note Ma, which is Perfect Fourth above Sa, holds the third position from that note. The note Pa, which is Perfect Fourth above

Ra, holds the same position from the latter note. The second object of omitting notes is of a purely æsthetic nature. This object follows from the third and the most important principle underlying the structure of Rāgas relating to especial significance of the Third above or below an Amsa. Omission for this purpose is of the utmost importance in differentiating the characters of Rāgas based on similar Modes of different Primary Scales, which are distinguishable by commas. It creates open Thirds, which are essential as distinctive features of Rāgas. This is best illustrated by the different forms of a Perfect Hexachord used in different Rāgas. Thus, the minor Hexachord Sa Rŏ Go Ma Pa Do is used as the Cadence Phrase of different Rāgas in the three transilient forms (1) Sa Rŏ × Ma Pa Do, (2) Sa Rŏ Go × Pa Do, and (3) Sa Rŏ Go Ma × Do, in which the three notes Go, Ma and Pa are omitted respectively. In the first and the second phrases the open Thirds are Major, and in the third it is Minor. They are all used in the descending order, the first in Rāga Ādi Bhairava, the second in Todî and the third in Gāndhārî. Notes of the ascending Minor Hexachord and those of both ascending and descending Major Hexachords in different positions of the Mode-octave may be similarly omitted for creating distinctive phrases for different Rāgas. Such omissions are also made in Pentachordal, Tetrachordal and Trichordal Cadence Phrases of different Rāgas. Omission of two, three or four consecutive notes is required for distinctive phrases of some Rāgas in order to have open Fourths, Fifths or Sixths in them.

(g). **Phrases how distinguished :** In finding out the constituent phrases of a Rāga the movement of notes, upwards and downwards, should be carefully observed. It is needless to say that a continuous upward or downward movement through all the notes of a Mode-octave cannot constitute a Rāga. It will be observed that a continuous movement either upwards or downwards is made through a few notes of the octave and then the movement takes the opposite direction. Several such upward and downward movements will be found in a single Rāga. The notes between two consecutive turning points of

these movements constitute a phrase. This is the general rule. Two consecutive ascending or descending phrases may often be found. These can be distinguished only by making the note which ends the first phrase and starts the second prominent either by prolongation or by strong accentuation.

As the constituent phrases of a Rāga are usually Perfect Phrases, they must either start or end with one of the three central notes of the Scale, viz, the Adhara Amsa, the Uttara Amsa and the Madhya Svara, which is in some Scales also an Amsa (Madhya Amsa). In finding out the constituent phrases, we must always keep in view these three central notes. It should, however, be pointed out that it will be difficult or even impossible to find out Perfect Phrases in many compositions. These must be considered to be bad compositions and are of no help in ascertaing the characrer of Rāgas. Phrases which neither start nor end with one of the three central notes will be usually found to be imperfect. They can, however, be made perfect by changing the tonality of the Scales, or in other words, by shifting the centres. This sort of modulation is against the principles of Rāga structure and gives rise to mixture of Rāgas. A mixed Rāga is, as stated above, a misnomer from the artistic point of view. A so-called Rāga composition, which confounds the mind as to which of several pure Rāgas it belongs to, does not deserve the name of Rāga and cuts at the very root of conception of Rāga unless it proves to be a new Rāga of distinct individuality. Modulations referred to above also give rise to false notions about similarity of Rāgas. Doubts and dissensions about distinction between Rāgas of similar character would seldom arise if the central notes of these Rāgas are correctly known and their constituent phrases are clearly differentiated from each other. False notions about similarity usually arise in Rāgas belonging to the Similar Scales of the Primary Group. These Scales are apt to be confused with each other, as the notes of these Scales are distinguishable by means of the minute interval of an Anushruti (comma), which untrained ears cannot perceive. Distinction between Rāgas belonging to these Scales can be made only by fixing the Amsas of these Rāgas. Real

difficulty may arise in regard to Rāgas belonging to the same Mela and having the same notes as their Amsas. This difficulty will be found to be illusory if the Rāgas have different Mode-Initials, or in other orders, if they are based on different Mode-octaves. Greatest difficulty will be felt in analysing Rāgas belonging to the same Mode of the same Scale, e.g. Desha and Surat, or Jaunpurî and Āsāvarî. Care should be taken in such cases to observe whether the Characteristic Phrases of the Rāgas are situated in the lower or the upper part of the Mode-octave.

(h). **Proper positions of Vishishta Tānas :** We have seen above that according to the fifth principle of structure of Rāgas the phrases, the sections and the periods constituting a Rāga must be co-ordinated by means of their concluding notes, which should be connected with each other by bonds of consonant relationships. It has also been pointed out that the last two phrases of a Rāga constitute the nucleus of its whole structure and that the concluding notes of all its phrases, sections and periods should be related to the concluding note of either of these two phrases. The positions of these two phrases, called the Nyāsa and the Upānta Tānas, in the different periods of a Rāga composition are, therefore, of utmost importance. The best position of the Nyāsa Tāna is the beginning and that of the Upānta Tāna the end of the Āsthāyî, which is the most important of the periods of a compositions and is considered as the seat of the Rāga. It thus follows that the concluding note of the Upānta Tāna, called the Apanyāsa, should also be the concluding note of the Āsthāyî period. The Antarā period of compositions should also usually conclude with the Apanyāsa, as also the Ābhoga period of Dhrupad compositions. These periods may end either with the Upānta Tāna or a Sādhaka Tāna concluding with the Apanyāsa. There are, however, compositions, specially of the Dhrupad style, in which both the Characteristic Phrases are placed at the end of the Āsthāyî period, which concludes with the Nyāsa note. In such compositions the Antarā and the Ābhoga, if any, should also conclude with the Nyāsa Tāna or at any rate, with the Nyāsa note. Any positions of Characteristic Phrases other than those indicated

above must be considered to be unusual and irregular. The character of a Rāga is rendered obscure in compositions in which the aforesaid salutory rules are not followed.

The best position of the Nyāsa Tāna in a composition is, as stated above, the beginning. The Vādî of a Rāga, which is the starting note of its Nyāsa Tāna, is, therefore, the initial note of good compositions. In ancient times this note was called the Graha. It is, however, often found that the starting note of even a composition which begins with the Nyāsa Tāna is not the Vādî. It will be observed in these instances that the Āsthāyî ends with the Upanta Tāna. This Tāna concludes with the Apanyāsa. As the Apanyāsa is usually identical with the Vādî, the Āsthāyî of such a composition practically ends with the Vādî. When the Āsthāyî is repeated its concluding note serves as its starting note. The Nyāsa Tāna placed at the beginning of the composition is thus felt to begin with the Vādî placed at the end of the Āsthāyî. It is, however, better to repeat the Vādî at the start of the composition in order to clearly bring out the perfect character of the Nyāsa Tāna.

The starting and the concluding notes of every Perfect Phrase may be considered as its Vādî and Nyāsa respectively. When one Perfect Phrase follows another the Nyāsa of the first phrase serves as the Vādî of the second. This note is usually placed at the beginning of a *pada* (bar) and is accented. It is the connecting link between two phrases, one of which is ascending and the other descending. In fact two consecutive phrases are usually distinguished from each other by the ascending movement of one and the descending movement of the other to or from the note connecting the two.

(i). Puraka Tānas : After the Vishishta Tānas are known for certain, the Puraka Tānas can be easily ascertained if the Mode-octave is definitely fixed, because these Tānas together with the Vishishta Tānas complete that octave, within which the Rāga must be confined. All the other Tānas called Sādhaka Tānas which contain notes of the higher or the lower octave, are of more or less variable character. Some amount of liberty

is allowed in the formation of these Tānas, provided they are confined within the notes of the Scale and are consistent with the character or spirit of the Rāga. A complete Rāga may have four to six Tānas, two being Vishishta and the others Puraka. As these phrases make up a full octave, if the Vishishta Tānas are situated in the lower part of the Mode-octave the others will be found in its upper part and *vice versa.* The Mode-octave proper for a Rāga must, consequently, be fixed before finding out the Puraka Tānas. It will be found rather difficult to fix the limits of this octave from compositions, in which the Āsthāyî period, extends beyond one octave. The portion of such a composition, which is confined within the limits of the octave essential for the Rāga, must be separated from the other portions and the notes above or below that octave must be left out as redundant. If the octave essential for the Rāga does not start with Sa, which is the Common-Initial of all Melas, then the Mela customarily used for the Rāga must be considered to be wrong and should be corrected by converting the initial note of the octave to Sa and altering the other notes accordingly.[6]

(j). Sādhaka Tānas : Sādhaka Tānas constituting periods other than the Āsthāyî should be ascertained according to the notes they take beyond the Mode-octave. These Tānas should preferably start with one of the Amsas situated within the Mode-octave. In the Antarā and Ābhoga periods they take

6. A single exception to the rule of Common Mode-Initial is fonnd in the existing Mela system. This is the five-flats Mela of Primary Scales, which is excluded from that system. In order to avoid flattening of the note Pa, which, like Ma of ancient times, is rather superstitiously believed to be unalterable, although allowed to be omitted in some Rāgas, the Mode-octave of the four-flats Mela is made to start with Na instead of Sa. This wrong notion is apt to give rise to confusion, as we find in the case of Pāschātya Lalita. Pa is said to be omitted in this Rāga and both natural and sharp Ma's are used, one after another as substantive notes. The sharp Ma of this Rāga is in reality flat Pa. The analogy of Rāga Prāchya Vasanta, is only apparent, because the sharp Ma of that Rāga is not flat Pa, the two Ma's in it being double Thirds below Dha. The flat Pa of Lalita is Fourth above flat Ra.

notes of the higher octave and in the Sanchārî period they take those of the lower octave.

(k). Trichordal and tetrachordal phrases often confused : It will sometimes be found difficult to ascertain whether a phrase is based on a tetrachord or an extended trichord. This difficulty arises out of the fact that in the Semitonic System on which Melas are based the same note stands for the flat of a certain note and the sharp of its next lower note. These are two distinct notes separated by two Anushrutis equivalent to about a quarter-tone. For example, Ro stands for both Rŏ and Si ; and Do for Do and Pi. The notes Ga and Na sometimes stand for Mo and So respectively.

The tetrachord Sa Ro Ga Ma of Semitonic Notation may represent one tetrachord and two extended trichords of Just Notation. These are as follows :—

(1)	*Sa	Rŏ	Ga	*Ma	—Tetrachord
(2)	*Sa	Si	*Ga	Ma	—Extended Trichords
(3)	Sa	*Rŏ	Mo	*Ma	

The Amsas of these phrases are marked by asteriks overhead. Phrase No. (1) is found in Rāga Rāmakali, phrase No. (2) occurs in Rāga Puravî and phrase No. (3) is found in Pāschātya Lalita.

Similarly, the combination Pa Do Na Sa^1 of Semitonic Notation may stand for one tetrachord and two extended trichords of Just Notation. These are :

(1)	*Pa	Do	Na	*Sa^1	—Tetrachord
(2)	*Pa	Pi	*Na	Sa^1	Extended trichords
(3)	Pa	*Do	So	*Sa^1	

In order to ascertain whether a Characteristic Phrase of a Rāga is tetrachordal or extended trichordal we should find out whether both the extreme notes of the combination are essential for the phrase, in other words, whether the phrase begins with one of them and ends with the other ; or the phrase ends with one of the extreme notes and begins with the Major Third

above or below it. In the former case the phrase is tetrachordal and in the latter it is extended trichordal. For example, the combination Pa Do Na Sa[1] of Just Notation, which is included in descending order in the Nyāsa Tāna of Rāga Kalingadā, is tetrachordal, as the extreme note Sa[1] is used as the Vādî of that phrase. On the other hand, the combination Pa Pi Na Sa[1] used in descending order in the Nyāsa Tāna of Rāga Paraja is extended trichordal, as Na and Pa are used as Vādî and Nyāsa respectively of that phrase. The Vādî Na of this phrase must be made prominent either by prolonging it in duration or by accentuating it strongly or by taking the extreme note Sa[1] obliquely, thus : Na Sa[1] Na Pi Pa. Again, the combination Pa Do So Sa[1] used in ascending order in the Nyāsa Tāna of Pāschātya Vasanta is also extended trichordal, as Do and Sa[1] are used as Vādî and Nyāsa respectively of this phrase. The Vādî notes of all such trichordal phrases must be made prominent in the above mentioned manner.

(I). Two kinds of oblique notes :

(1) It may be a Varjita Svara. Two conditions must be fulfilled in using this note. Firstly, the open Third created by its omissiom must be always kept open. Secondly, it must not make a false Third with any note. For this purpose it is sometimes altered by an Anushruti. By this alteration the tonality of the Scale is changed. This is possible only when the note R of the First or the Fourth Primary Scale or the corresponding note of their different Murchhanās, is the omitted note. Considered as Ra of the First Primary Scale, which is false Third to Ma, it can be taken obliquely in relation to Na ; and considered as Rā of the Fourth Scale, which is false Third to Na, it can be takea obliquely in relation to Ma. Such oblique use of Rā is found in the Nyāsa Tāna of Gaud Sāranga, thus : Sa Ga *Ma Rā Ma* Ga.

(2) It may be a substantive note of the Scale, but unrelated to either the starting or the concluding note of the phrase, and related to an intermediate note. In this

case it must be taken after the related note and return to it. Example of its use is found in Rāga Puravî, thus : Sa *Ga Si Ga* Pa Da Pa. In this phrase the note Si is dissonant to both Sa and Pa and is related to Ga as Minor Third below it.

Oblique use of a note which is extraneous to a Perfect Phrase is not only possible but artistically valuable, because its consonance with the related note is so clearly brought out by the oblique movement that its dissonance with the central notes is not felt to be harmful to the progression. It is felt to be only an appendage to the related note and an embellishment of it. The oblique motion of the note has the effect of eliminating it from the course of progression.

E. CLASSIFICATION OF RĀGAS.

No rational method of classification of Rāgas exists at present that may be of any help in ascertaining the characters of Rāgas. The medieval method of classifying Rāgas into Rāgas, Rāginîs and Putras is useless, because no principle on which this classification could be based was ever formulated. It is for this reason that we find that different schools have different names for their Rāgas, though their number is always six, and that Rāgas and Putras of one school are Rāginîs of another. The South Indian method of classifying Rāgas into Janaka and Janya is based solely on Melas. Such a classification is of no scientific value, because a single Mela, as we have seen, may represent different Modes of different Scales. The modern North Indian method of classifying Rāgas into groups bearing common class-names is rational and useful. But, its scope is limited, and it cannot be made to cover the whole field of Rāga music. At present only seven such groups are found to be generally recognized. These are : Kānāda, Kedāra, Mallāra, Todî, Sāranga, Nata and Vilāval. These include about seventy-five Rāgas, many of which are unknown to modern musicians. This system of grouping came into existence before the time of Bhāba Bhatta, who wrote his books about the end of seventeenth century

A. D. In his Anupa Sangîta Ratnākara he mentions the names of eighteen groups, which include one hundred and fifty Rāgas. Most of these groups and the Rāgas included therein have become obsolete. The modern seven groups mentioned above may meet a similar fate, unless a common feature of each of these groups is clearly defined. It is very difficult to find out any common feature in many Rāgas included in these groups, and no rational explanation can be found for their inclusion in the groups. For example, no common feature worth the name can be discovered between Darbārî Kānādā and Bāgeshrî. If such Rāgas are excluded from a group it will usually be found that the Melodic Triad on which the Nyāsa Tāna of a Rāga is based. is the common feature of all Rāgas of the group to which it belongs.

F. THREEFOLD PURPOSE OF THE CHAPTER.

The principles underlying the structure of Rāgas laid down in this chapter and the means suggested therein for ascertaining their character are calculated to serve a threefold purpose. In the first place, they may be found to be helpful by investigators in the field of Indian music in finding out whether there are authentic and correct forms of a particular Rāga other than those described in the next following chapters. Secondly. rarely used Rāgas, which are not dealt with in those chapters, may be brought to light and properly described for the benefit of the musical public. Thirdly, talented musicians may be encouraged to create new Rāgas on the basis of the vast materials, which will be found to be available for that purpose in the present treatise.

CHAPTER XV.

RĀGAS OF PRIMARY SCALES : MODES 1 TO 3.

A. PRASIDDHA AND APRASIDDHA RĀGAS.

Different views have been held regarding the number of Rāgas actually used in modern Hindusthanî music. It is a well-known fact that some Rāgas are used by musicians all over Northern India, while others are known to only a few of them. There are, again, some Rāgas which are sung in particular parts of the country, but are not known in other parts. Rāgas are usually put under two categories : 'Prasiddha' or well-known and 'Aprasiddha' or uncommon. It is difficult to ascertain the character of some Rāgas of the latter class, as the recorded compositions of these Rāgas are very few in number and often faulty. Compositions of one hundred and eightyone Rāgas have been recorded in "Kramika Pustaka Mālikā" (six volumes) edited by Vishnu Narayan Bhatkhande in Bombay, in a rather clumsy notation devised by him in Devanāgri script. Of these only fortyfive are stated to be Prasiddha Rāgas, the remaining one hundred and thirtysix being characterized as 'Aprasiddha'. About thirty compositions on the average have been given in this work for every Prasiddha Rāga and only about four for every Aprasiddha Rāga.

The four books published in Bengal : "Kantha Kaumudî" by Kshetra Mohan Goswamî, "Gîta Sutra Sāra" by Krishna Dhan Banerji, "Sangîta Manjarî" by Rama Prasanna Banerji and "Sangîta Chandrikā" by Gopeswar Banerji embody compositions of about one hundred and fortyfour Rāgas. The compositions in "Gîta Sutra Sāra" are recorded partly in the European Staff Notation and partly in a good notation devised by the author in Bengali script on the model of the European Tonic-Solfa Notation. The compositions of the other three works

are recorded in a notation devised by Kshetra Mohan Goswamî in Bengali script.

The compositions in Kramika Pustaka Mālikā are mostly of the popular Kheyal style. The names of the composers are nowhere mentioned. The compositions of the Bengal publications are mostly of the majestic Dhrupad style in which most of the ancient great masters sang and composed. The names of the composers are mentioned in most cases. The classical compositions found in the aforesaid works have been of immense help in the analysis and characterization of Rāgas dealt with in the present treatise. Some of them have been reproduced with necessary corrections and modifications in the descriptions of difficult or contentious Rāgas in order to unfold their true character. Rāgas of Primary Scales, which are by far the largest in number, have been dealt with in two chapters. Rāgas of Secondary Scales and those of Chromatic Scales, which are most difficult to learn and sing correctly, have been described in a separate chapter. Altogether seventy Rāgas including all the Prasiddha Rāgas have been dealt with in this treatise.

Abbreviations.

G. S. S.—Gîta Sutra Sāra
H. S. P.—Hindusthānî Sangîta Paddhati
K. K. —Kantha Kaumudî
K. P. M.—Kramika Pustaka Mālikā
L. S. —Lakshya Sangîtam
S. Ch. —Sangîta Chandrikā
S. M. —Sangîta Manjarî
S. R. —Sangîta Ratnākara

B. NOTATION.

Two kinds of Notation have been explained in the first chapter: "Just" and "Semitonic". The thirty-three notes of Just Notation required for expressing the Modes and the twenty-three notes of Semitonic Notation for the Melas have been given in that chapter. The illustrations of Rāgas in the following chapters are written in Just Notation. The notes

of the Mode used in a Rāga given in its description are also those of Just Notation. The Amsas of a Mode have been marked by asterisks placed over the notes and the mutual relationships of consecutive notes have been shown by means of Anushrutis placed below and between them. The two notes of a Mode that are related as false Thirds are marked by a connecting brace over them. The Signature and the Serial Number of the Mela customarily used in a Rāga, or in case the Mela is either wanting or incorrect, the proposed correct Mela-Signature and the Serial Number have been given at the head of the description of the Rāga, together with the numbers of the Scale and the Mode, which the Mela represents. The Semitonic Notation of a Rāga can be easily reduced from its Just Notation given in the book with the help of the Signature of the Mela.

The signs required for expressing time measures and accents have been given in the first chapter. Signs, which are sometimes used for embellishment, are non-essential for Notations. Only one so-called embellishment, which is, in reality, a most powerful instrument for bringing out the spirit of a Rāga, has been used in the Notations given in this treatise. This is known as *Meed.* Scales have been shown to be differentiated from each other by means of the Thirds above or below their Amsas. These intervals and their inversions the Sixths are, consequently, the most important factors in delineating and distinguishing the characters of different Rāgas. The characteristic Thirds or Sixths of Rāgas must, therefore, be made clearly discernible and prominent. This is done by means of the *Meed.* It is a gliding movement from one note to another touching all the intermediate tones, which produces a solemn and yet pleasing effect. Good singers especially of the Dhrupad style use *Meed* with great æsthetic effect. All open consonant intervals can be made prominant by the *Meed.* In this treatise it will be represented by continuous double lines placed below and between two notes having an open consonant interval between them. Thus :

Sa: Do:

Positions of accent-marks of Tālas in the Notations of Rāga-compositions given in this treatise will be found to be slightly different from the positions customarily given to them in the Tālas. Explanation for these departures will be found in the elucidation of musical rhythms given in the eighteenth chapter on styles.

C. RĀGAS OF PRIMARY SCALES : MODES 1 TO 3.

Seven Melas can be used in Rāgas of Primary Scales. These are Shuddha (1), No (2), No-Go (3), No-Go-Do (4), No-Go-Do-Ro (5), No-Go-Do-Ro-Po (6), and Mi (7). Of these the sixth is not in use in Hindusthānî music, as flat Pa is not allowed in that system, Pa being, according to custom, considered to be unalterable. Each of these Melas can be made to represent a Mode of any one of the first four Primary Scales by changing the positions of the Amsas. As the character of a Rāga depends mainly on its Amsas and as the difference between Rāgas having the same notes for their Amsas can be best understood if they are studied together and compared with each other, Rāgas have been arranged according to the numbers of their Modes ; those, having the same Mode-number and consequently having the same notes for their Amsas, being dealt with together. They have been taken up in the serial order of the numbers of their Modes.

The First, the Fourth and the Fifth Modes include the largest number of Rāgas of Primary Scales. Very few Rāgas are based on the other four Modes. Rāgas in the first three Modes are dealt with in the present chapter.

I. FIRST MODE.

(Amsas Sa and Pa).

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1. KEDĀRA.

[Prim. I. 1—Shuddha (1) Mela.]

Rāga Kedāra naturally comes first as it is the oldest and the most famous of Rāgas based on the First Mode of Primary

First Scale. The Mela of this Rāga is mistakenly believed by some authors and musicians to be Mi-Mela. Natural Ma is universally admitted to be one of the most important notes of this Rāga and even considered (though wrongly) to be its Vadi. Sharp Ma, which is often found to be used in it, is a non-modulating note extraneous to its Scale. The proper Mela for the Rāga is, therefore, the Shuddha. The ancient author Lochana Pandita names Kedāra as one of his twelve Samsthānas (Melas). This Mela is equivalent to the Shuddha Mela of modern Hindusthānî music. The Amsas of this Rāga are Sa and Pa. The notes used in it are the same as those of the Scale of Origin of Hindusthānî-music. They are given below in Just Notation with the numbers of Anushrutis between the consecutive notes :

*Sa	Ra	*Ga	Ma	*Pa	Da	Na	Sa^1	—Prim. I, 1
9	8	5	9	8	9	5		

The Amsas are marked by asterisks and the Vrithā Tritiya (false Third) by a brace overhead.

Kedāra is a Rāga of grave and sublime character and it is one of the few Rāgas in which the Characteristic Phrases are pentachordal.

Characteristic Features :

(1). **Scale**—Primary First.
(2). **Mode**—First.
(3). **Tonics**—Sa and Pa.
(4). **Omitted Notes**—Ra in ascent and Ga in descent.
(5). **Final Note**—Pa. (6). **Semi-final Note**—Sa.
(7). **Characteristic Phrases :**

Cadence Phrase—SaMaGaMaPa
Penultimate Phrase—PaMaGaMaRaSa.

Complementary Phrases :

(1) Pa Da Sa^1
(2) Sa^1 Da Pa.

The Final Phrase is based on Pentachordal Cadence-Norm No. 15(a)—Sa Ma Pa. The note Ma, as the penultimate note leading to the Final, is very important and prominent in this Rāga. Sa is Vādî and Apanyāsa (Semi-Final) ; and Pa is Apa-Vādî and Nyāsa (Final). The Upānta Svara (penultimate

note) Ma is brought to prominence by keeping the interval Sa-Ma always open and giving the note long duration. But, it is wrong to call it the Vādî, as is often done. Sa, being the starting note of the principal Characteristic Phrase of the Rāga, is the Vādî. It would be equally wrong to call Ma the Nyāsa of the Rāga, as conclusion must be made not on that note but on Pa. Kedāra is a night Rāga as its concluding phrase is of ascending character. It is a remarkable instance of the great importance of the Nāyaka Svara (Leading note) in a Rāga.

Sharp Ma which is found to be used often as a chromatic note in this Raga, must be considered to be wrong, as alteration of the Nāyaka Svara destroys the character of a Rāga[1].

It will be observed that the basic triad of the main Characteristic Phrase of this Rāga is direct and pentachordal, and devoid of any Third or Sixth. Thirds and Sixths, being those relationships between notes which distinguish Scales from each other, may be considered to be the very soul of melodic music. Melodic phrases which are devoid of these two consonant relationships are bound to sound insipid. It is, therefore, necessary to enlarge the Nyāsa Tāna of Kedāra Rāga by adding to it Ga, the Third and sometimes also Da, the Sixth above the Vādî Sa. Thus, Sa Ma Ga Ma Pa (Da) Pa.

The note Na, which is badly dissonant to the strong leading note Ma, should be avoided as much as possible. It may be slightly used with carefulness, but it is better to avoid it.

Kedāra is an ascending pentachordal Rāga sung in night. There are some compositions said to be based on Kedāra, which start with Sa[1] of the higher octave. The Characteristic Phrases of these compositions are inversions of those of Kedāra placed in the upper part (Uttarānga) of the Mode-octave. They are in reality compositions of a Rāga called Jaladhara. It is sometimes called Jaladhara Kedāra. But, being placed

1. The sharp Ma which is used in the combination Da Mi Pa as Minor Third below Da. is not a modulating note, as it does not introduce a correct new Scale.

in opposite parts of the Mode-octave, they must be treated as different Rāgas. Similar relationship exists between Rāgas Bibhāsh and Deshakāra, between Asāvarî and Jaunpurî, between Desh and Surat and other pairs. Such pairs of Rāgas placed in the lower and the upper parts of the same Mode-octave are often confused with each other.

Illustration :

Rāga-Kedāra.

Tāla-Tritāla.

Asthāyî :

S: S: S.M. M: | M: G.M P: P: ‖ P: P: M: P: |
Ha - ra pa - - - ra - - - me- - - - shwa-ra shma-shā na- - vi-
D: P: P: —: | P.M. P: D: S¹: | D: —: P: — : ‖
-hā - - - - rî ··· ··· ka - - ru- - nā- - ni - - - dhā - - - na·····
M: G: G: M: | P.M. G.M. R: S: |
pi - nā - ā- - ka - - - dhā - - - - - - - - rî ·····

Antarā :

P: M: — : P: | D: P: S¹: S¹: ‖ S¹: D: D: D: |
Bhu-ja - - - - - nga - bhu - - - sha - - na shi- -va tri - pu -
S¹: — : S¹: — : | S¹: N: R¹: — : | S¹: D: D: D: ‖
rā - - - - - ri ····· ga - -u - -rî - - - - - - nā - - - -tha ·····
M: G: P: M: | P.M. G M. R: S: |
bha - va - bha - -ya - - - hā - - - - - - - rî .....

2. JALADHARA.

[Prim. I, I.—Shuddha (1) Mela.]

Jaladhara, which is sometimes wrongly called Jaladhara Kedāra, is based on Shuddha Mela and has Sa and Pa as its Amsas like Kedāra. Its Mode is, therefore, the First Mode of Primary First Scale. As the Cadence-Norms of its Characteristic Phrases are inverse to those of Kedāra and situated

in the Uttarānga, it should not be treated as a variety of Kedāra, but as a different Rāga. The notes of the Mode used in it are given below in Just Notation :

*Sa	Ra	Ga	Ma	*Pa	Da	Na	Sa—Prim. I, 1.
9	8	5	9	8	9	5	

The Characteristic Phrases of Jaladhara are tetrachordal and oblique, while those of Kedāra are pentachordal and direct.

Characteristic Features :

(1). **Scale**—Primary First.
(2). **Mode**—First.
(3). **Tonics**—Sa and Pa.
(4). **Omitted notes**—Ra in ascent, Ga and Na in both ascent and descent, which are used obliquely with Pa and Ra^1 respectively.
(5). **Final note**—Pa.
(6). **Semi-final note**—Sa^1.
(7). **Characteristic Phrases :**
Cadence Phrase—Sa^1 Ma Pa Da Ma Pa
Penultimate Phrase—Pa Da Ra^1 Sa^1 Na Ra^1 Sa^1

Complementary Phrases :
(1) Sa Ma Ga Pa Da Pa
(2) Pa Ga Ma Ra Sa.

The Cadence Phrase of Jaladhara is based on Tetrachordal Cadence-Norm No. 14(a)—Sa^1 Ma Pa. The descending Fifth Sa^1-Ma of this Cadence-Norm should be kept open and taken by *Meed*. This phrase should be amplified by inserting the Third Da obliquely. Thus : Sa^1 Ma (Pa) Da Ma Pa. Without this Third the phrase would be insipid, as its Cadence-Norm consists of Fourth and Fifth only as in Kedāra. The Vādî and Apanyāsa (Semifinal) of Jaladhara are Sa^1 of the upper octave, while those of Kedāra are Sa of the mid-octave. The Apa-Vādî and Nyāsa (Final) of both of them are Pa of the mid-octive. Rāga Jaladhara should be sung in night like Kedāra, though its Cadence Phrase is descending in character, because that phrase is situated in the upper part of the Mode-octave (Uttarānga) and is oblique.

Illustration :

Rāga-Jaladhara.

Tāla-Teebrā.

Āsthāyî :

Ṡ¹: S¹: M: Ṗ: P: | Ḍ: M: | Ṗ: D: R¹:
Sha - ra - - na ka - ra tu go - - vi - - - - nda

Ṡ¹: N: Ṙ¹: S¹: Ṗ: D: D: | Ḍ: P: | – : P: |
me - - re ma - - na tri - - vi - dha tā - - - - pa

Ṁ: P: P: Ġ: M: Ṙ: S: | Ṡ: M: G:
ha - - ra- - ta ta - ta chhi--na ha - -ra vi - -

Ṗ: M: | Ḍ: P: Ḍ: S¹: M.P. | Ḍ: M: | Ṗ: P: |
nā ··· ··· sa - -va vya - - - rtha jî - - - - va - na.

Antarā :

Ṗ: M: P: Ḍ: P: Ṡ¹: S¹: | Ṡ¹: — : D: | Ṡ¹: – : | Ṡ¹: S¹:
jo - - - ga jā - - - ga - - ru ta - - - pa tî - - - - ra - tha

Ṡ¹: M¹: M¹ Ṙ¹: R¹: Ṡ¹: S¹: Ṡ¹: D: D: | Ḍ: D:
bha - - - - kti vi - - nā sa - - va ni - - shpha - la ka -

Ṗ: P: | Ṁ: G: M: | Ṗ: P: Ḍ: P: Ṗ: D: D: |
-ra - ma e - - - ka nā - ma ka - - ra - ta bha - va

Ṗ: M: Ṙ: S: Ṡ¹: S¹: D: Ṡ¹: S¹: Ṙ¹: R¹ |
ta - - - - ra - na kā - - he na sa - - ma - - jha - - ta

Ṡ¹: – : D: | Ḍ: D: | Ṗ: P: |
mu - - - - dha me- - re ma - -na.

This song is an adaptation of the composition given in K. P. M., III, 155, materially altered. It has been wrongly included in the songs of Kedāra, with which it has only a faint resemblance.

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3. BIBHĀSH.

[Prim. I, 1.—Shuddha (1) Mela.]

Rāga Bibhāsh, as it is sung in Bengal, is based on the First Mode of First Primary Scale, having for its Amsas Sa, Ga and Pa. The Mela used is the Shuddha Mela. In

Bhatkhande's works three other kinds of Bibhāsh are found which are based on Ro-Do, Ro-Mi-Do, and Ro-Mi Melas. These forms of Bibhāsh are not found in Bengal, where a very popular and beautiful Rāga of the same name is sung in Shuddha Mela. Bibhāsh is universally acknowledged to be a morning Rāga. But, the three forms of it found in Bhatkhande's works are all appropriate for evening[2]. So, the name "Bibhāsh" is a mis-application so far as the aforesaid three forms are concerned. That name is applicable only to the form used in Bengal, which is undoubtedly appropriate for morning. This Rāga is customarily considered to be pentatonic in ascent, omitting Ma and Na, and hexatonic in

2. The first of the aforesaid three forms is supposed to be based on Ro-Do Mela, which is used in some morning Rāgas. But, this Mela cannot exist without Ma, a note which is said to be omitted in this so-called Bibhāsh. The note Ro of the Ro-Do Mela owes its existence to Ma as the Major Third below it. In the absence of the latter note it must be related to Ga as the Minor Third below it. It is in reality Si, which is used in evening Rāgas only. As Ma is absent in all the three forms which have Ro in them, they must be considered as evening Rāgas. The omitted fourth note of the Mela of the first form is, therefore, to be taken to be Mi and not Ma. The first two forms will, thus, be found to be indistinguishable form each other. These two forms, again, are indistinguishable from another Rāga called Reba. They have, therefore, no place as separate distinct Rāgas. Rebā is admittedly an evening Rāga and has no semblance with the Bengal Bibhāsh. The third form based on Ro-Mi Mela is quite similar to Rāga Puravi without Ma, which is used in it only in an oblique manner and not indispensable. The third form also should not, therefore, have a separate name. (Vide K. P. M., V, 333, 390, 393 and VI, 33). Satya Kinkar Banerjee, a bold exponent of the Vishnupur Sch ol of music in his book "Sangeet Jnana Prabesh" (p. p. 39-41) draws attention to the fact that Bibhāsh is a very popular ancient Rāga of Bengal, which is used not only in folk-songs like Aul, Baul and Kirtan, but also by the great poet Tagore in many of his songs and deplores that some modern musicians of Bengal are trying to change the character of this and some other Rāgas by blindly following the lead of musicians of western India. The author has shown true musical insight by holding that the Rāga as it is sung in Western India is appropriate for evening and not for morning.

descent, omitting Ma only. It is, however, essentially pentatonic both in ascent and in descent. Its character is not only fully brought out, but it acquires some sublimity, if it is sung in a fully pentatonic Mode. The note Na, however, can be and is often used in descent and also in ascent obliquely.

The notes used and omitted in the Rāga are given below in Just Notation :

*Sa Ra *Ga [Ma] *Pa Da (Na) Sa¹—Prim. I, 1.
9 8 5 9 8 9 5

The note which is omitted in both pentatonic and hexatonic froms is placed within angular brackets and the note which is omitted in the pentatonic form only is placed within curved brackets. The Amsas are marked by asterisks and the false Third by a brace overhead.

Characteristic Features (Lakshanas) :

(1). **Scale (Grāma)**—Primary First.
(2). **Mode (Murchhanā)**—First.
(3). **Tonics (Amsas)**—Sa Ga and Pa.
(4). **Omitted notes (Varjita Swaras)**—Ma and Na in ascent and Ma is descent.
(5). **Final Note (Nyāsa)**—Sa.
(6). **Semi-final Note (Apanyāsa)**—Pa.
(7). **Characteristic Phrases, (Vishishta Tānas) :**
Cadence Phrase (Nyāsa Tāna)—Pa Ga Pa Ra Sa
Penultimate Phrase (Upānta Tāna)—Sa Da Pa.

Complementary Phrases (Puraka Tānas) :
1. Ga Da Na Da Pa.
2. Sa¹ (Na) Da Pa

The Cadence Phrase is based on Pentachordal Cadence-Norm No. 18(d)—Pa Ra Sa. The note Na, which is to be omitted in ascent, is used obliquely in the Penultimate Phrase as Major Third above Pa : thus : Sa Da Pa Da Na Da Pa..

Both the Characteristic Phrases of this Rāga are like those of Rāga Kedāra, pentachordal with Sa or Pa as starting and concluding notes. The Final Phrase of Bibhāsh is descending in character, while that of Kedāra is ascending. Pa is Vādî and Apanyāsa and sa is Nyāsa and Apavādî of Bibhāsh. The descending Minor Third Pa-Ga of the Nyāsa Tāna and

the ascending Major Sixth Sa-Da of the ascending Upānta Tāna are distinctive intervals of this Rāga, and should be made prominent by *Meed* in order to bring out the true spirit of the Rāga.

Bibhāsh is a descending pentachordal Rāga sung in morning.

Illustration :

Rāga-Bibhāsh.

Tāla-Dîpachandî.

Āsthāyî : **Tānasena.**

*S: –: D.P. 0D: –: D: –: /D: P: D.P. |
Sā- - - - -dha - - an na ..... ka - - - -ra - - -

D: –: N: –: D: P: –: 0G: –: P: –: |
-te - - -en ..... gu - - ni - - - ya - - - na .....

/P: G: P: | 0R: –: S: –: +G: –: R:
ji - - - yā - - - te - - - en..... ke - - - - te

0S: –: –: S: | /G: –: P: | 0D: –: –: D: |
rā - - - - - - ga ke - - - te tā - - - - - - na

P: –: D.P. | 0D: –: N: –: | /P: D: D: |
ke - - - - - te a - - - lang - - - kā - - - -

0P: G.P. R: S: |
- - - - - - -ra.....

1st Antarā :

+D: –: P: | 0S¹: –: –: S¹: | /S¹: –: S¹: | 0S¹: –: –: S¹: |
ko - - -na su - - - - - ra ko - - - na tā - - - - - - - la

+S¹: –: R¹: | 0G¹: –: P¹: G¹: | /R¹: –: S¹: | 0S¹: –: D: P: |
sa - - - pta su - - - ra..... ti - - - na grā - - - - ma

+S¹: –: D: | 0P: –: G: –: | /R: G: P: | 0D: –: S¹: –: ||
na - - - -ra nā - - - ra ..... ka - - - ra - - ta..... vi - - -

+R¹: –: R¹.S¹. | 0D: –: P: –: | /G: P: –: | 0R: –:
chā - - - - - - - - - - - - - - - -ra .....

S: –: |

2nd Antarā :

+ S: —: D: 0 D: D: D: P: | / P: —: D: | 0 Ṅ: D: P: —:
ko - - - -na dha-ra - na ..... ko - - na mu-ra- na.....

+ P: D: —: 0 Ṡ¹: —: S¹: —: | / Ṡ¹: —: S¹: | 0 Ṡ¹: —: S¹: —:
ka-he ..... Mi - - - yān..... Tā - - - na - - se - - - na.....

+ Ṡ¹: R¹: —: 0 Ġ¹: P¹: G¹: —: 1 Ṙ¹: Ṡ¹: —: 0 Ḍ: —: P: —:
su - na ..... ho ..... su - - - - ma - ra ..... na - - - ra .....

+ P: D: —: | 0 P: —: G: —: / G: —: P: 0 D: —: D: —: |
e - te ..... ri - - - jhe ... ka - - ha ki - - - je .....

+ P: —: D: . 0 Ṡ¹: —: S¹: —: / P: D: P: | 0 G: P: R: S:
Nā - - ye - - ka..... Go- - - -pā - - - - - - - - - -la .....

The composition in Bibhāsh by Tānasena given in K. K., 55 is reproduced above with slight modifications. The Tāla is Dîpchandî and not Jhāmptāl as stated in the book.

It will be observed that the note Na is nowhere used in the Āsthāyî period of this composition, though it is used only once in another period. There is another Dhrupad song of Tānasena in K. K. 118, in which that note has been profusely used.

Many of the compositions in K. P. M. IV, 238-272, described as Deshkāra, are in reality those of Bibhāsh. A genuine Deshkāra composition by Tānasena found amongst them has been reproduced under that Rāga.

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4. DESHAKĀRA.

Prim. I, 1.—Shuddha (1) Mela.

Deshakāra is a pentatonic (Auduva) Rāga in the First Mode of Primary First Scale, which omits totally Ma and Na. The Mela used in it is the Shuddha. This Rāga is apt to be confused with Bibhāsh if sung in the pentatonic form. The distinction between the two Rāgas is, however, quite

clear, as their Cadence Phrases are different. The notes used in Deshakāra are as follows in Just Notation :—

Sa Ra Ga [Ma] Pa Da (Na) Sa^1—Prim. I, 1.
9 8 5 9 8 9 5

Characteristic Features :

(1). **Scale**—Primary First.
(2). **Mode**—First.
(3). **Tonics**—Sa, Ga and Pa.
(4). **Omitted notes**—Ma and Na both in ascent and in descent.
(5). **Final**—Pa.
(6). **Semi-final**—Sa^1.
(7). **Characteristic Phrases :**
Cadence Phrase—Sa^1 Pa Da Pa.
Penultimate Phrase—Pa Da (Sa^1) Ra^1 Sa^1.

Complementary Phrases :
(1). Ga Pa Da
(2). Sa Ga Pa Da

The Cadence Phrase is based on Tetrachordal Cadence-Norm No. 12 (a)—Sa^1 Da Pa.

Sa^1 is Vādî and Apanyāsa and Pa is Apa-Vādî and Nyāsa of Deshakāra. Na is sometimes found to be used in descent.

As Deshakāra is a descending tetrachordal Rāga sung in morning, the Minor Third Da below the Vādî Sa^1 should be taken obliquely with the Nyāsa Pa in order to make the cadence conclusive.

Illustration : **Rāga - Deshakāra.**
Tāla - Jhāmptāl.

Āsthāyî : **Tānasena.**

$\overset{0}{S^1}$: P: D: | $\overset{*}{P}$: P: $\overset{0}{D}$: —: S^1: | $\overset{/}{D}$: —: |
De - - - - vi pa - - - ra - sā - - - - - da dî - - - -
$\overset{0}{S^1}$:—: — : || $\overset{+}{P}$: G: | $\overset{0}{P}$: D: S^1: | $\overset{/}{P}$: D: |
-je..... a - - pa - - ne ... .. ja - - - na- -na
$\overset{0}{P}$: —: —: | $\overset{+}{P}$: —: | $\overset{0}{D}$: G: P: | $\overset{/}{G}$: G: |
-ko..... tā- - - - -ra ra - - sa dr i- -dha
$\overset{0}{R}$: S: S: | $\overset{+}{S}$: S: | $\overset{0}{G}$: —: R: | $\overset{/}{S}$: —: |
jyo - - - - ta sa - - ra - sā..... ma- - ta .....
($\overset{0}{S^1}$: P: D: | $\overset{*}{P}$: P :) |
(de - - - - vi pa - - ra)

Antarā :

P: G: | P: —: D: | S¹: D: | S¹: —: S¹: |
A - - - - - - ro - - - - hi a - - - va - - ro - - - - - hi

S¹: D: | S¹: —: R¹: | S¹: P: D: —: P: ||
o - - ong - - kā - - - - ra dho - ong - kā - - - - ra

G¹: R¹: | G¹: —: R¹: | G¹: R¹: | S¹ —: S¹: |
sa - - pta su - - - - - ra ti - - na grā - - - - ma

S¹: D: | S¹: —: R¹: | S¹: P.D. | (S¹: P: D:) |
pā - - - - - - ye..... ju - - - ga - - ta (de - - - - - vi)

Sanchārî :

P: G: | P: P: -: | D: D: | P: —: P: ||
a - - - - om - - bi - - kā..... bha - - va - - kā - - - - - lî

S¹: D : | S¹: S¹: —: | P: D: | P: —: P: ||
cha - - on - - di - - kā..... ka - - ong - - kā - - - - - lî

P: G: | P: D: P: | G: —: | R: —: S: ||
ki - - - - - - je..... da - - yā..... mo - - - - - pe

S: R: | G: P: P: | D: —: | D: —: P: ||
rā - - - - - - kho..... mo - - ri..... mā - - - - tā

Ābhoga :

P: P: | D: S¹: S¹: | S¹: S¹: | S: —: S¹: ||
Tā - - na - - se - - - - - - na ja - - ra lā - - - - - gi

S¹: D: | S¹: —: R¹ | S¹: S¹: | P: D: P: ||
vi - - - na - - - ti..... ka - - ra - - ta hā - - - - - e

G¹: —: | R¹: G¹: P¹: | G¹: R¹: | S¹: —: S¹: ||
de - - - - - - sha - - - - kā - - - rî..... bā - - - - ra

S¹: D: | S¹: —: R¹: | S¹: P.D. | (S¹: P: D:) ||
gā - - - - - - un..... ju - - - ga - - ta (de - - - - vi)

The Dhrupad song by Tānasena given in K. P. M., IV, 259-262 is reproduced above with slight alternations. The Nyāsa Tāna has been placed at the beginning of the composition. The Nāyaka Svara of Upānta Tāna is, it will be observed, situated in the upper octave and used obliquely. This is a genuine composition of Deshakāra amidst others, most of which are based on Rāga Bibhāsh, but supposed to be based on Deshakāra.

5. ĀLĀHIYĀ.

[Prim. I, 1.—Shuddha (1) Mela.]

Ālāhiyā Rāga is based on Shuddha Mela. The note No, which is sometimes used in it as a touch-note, is not essential for it[3]. It is a hexatonic Rāga, in which Ma is omitted in ascent and Pa in descent. The Amsas are Sa and Pa. It is, therefore, based on the First Mode of Primary First Scale. By the use of note No, it sometimes modulates to the First mode of Primary Second Scale. The notes used in Ālāhiyā are given below in Just Notation :

*Sa Ra *Ga [Ma] *Pa Da Na Sa[1]—Prim. I, 1.
9 8 5 9 8 9 5

The note Ma is to be omitted. It may be used in ascending phrases, in which a leap is taken to it from Sa.

Lakshanas :

(1). **Grāma**—Mukhya Prathama.
(2). **Murchhanā**—Prathamā.

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3. Distinction is sought to be made by some musicians of Western India between Ālāhiyā with both the Ni's and that with only natural Ni. The latter they call Vilāval. Only about half a dozen compositions in this so-called Vilāval Rāga are found in K.P.M. In a few of even these the note No is used. As regards Ālāhiyā it is stated in K.P.M., II 68 that No is used in it slightly. In some of the compositions of that Rāga given in this book even this slight use is dispensed with. Satya Kinkar Banerji, a musician of Bengal, states in page 36 of his Sangîta-Jnan-Prabesh that Ālāhiyā is essentially based on Shuddha Mela, though some persons use No in it slightly. He is quite right in holding that the distinction sought to be made between Ālāhiyā and Vilāval Rāgas on the basis of this slight use of No is illogical and useless. He further states that Ālāhiyā is an older and more important Rāga, in which many ancient Dhrupads, which still exist, were composed. Vilāval, in his view, is a distinct Rāga in which sharp Ma is used together with natural Ma. The, same view is also emphatically expressed in page 143 of Sangîta Manjarî by Rama Prasanna Banerji, where a composition of Vilāval with sharp Ma is given. In view of this marked difference of opinion regarding the notes used in Vilāval, it is misleading to call the Shuddha Mela by that name.

(3). **Amsas**—Sa, Pa and Ga.
(4). **Varjita Svaras**—Ma in ascent and Pa in descent.
(5). **Nyāsa**—Ga.
(6). **Apanyāsa**—Sa^1.
(7). **Vishishta Tānas** :
Nyāsa Tāna—Sa^1 Na Da Ma Ga.
Upānta Tāna—Ga Pa Da Na Sa^1; or,
Ga Pa Na Da Na Sa^1.
Puraka Tānas : (1). Sa Ma Pa Da Pa ; or,
Sa Ma Pa Da No Da Pa.
(2). Pa Ma Ra Sa.

The Nyāsa Tāna is a Minor Hexachordal Phrase based on Cadence-Norm, No. 25 (a)—Sa^1 Ma Ga, which starts from the Lower Tonic Sa^1 and concludes with the Middle Tonic Ga. Minor Hexachordal Characteristic Phrases with the same starting and concluding notes, are also used in Rāgas Khāmbāj, Āyata Hindola and Prāchya Vasanta.

Ālāhiyā is a descending hexachordal Rāga fit to be sung in morning.

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6. KHĀMBĀJ.

[Prim. I, 1 and II, 1—Shuddha (1) and No(2) Melas.]

Khāmbāj is an elegant Rāga usually used in the lighter styles of Hindusthanî music. This beautiful Rāga appears to have been rather neglected by advocates of the higher styles. Misconceptions about its character have come into being as a consequence. Classical songs in this Rāga are very rare. Yet its character is quite clear and impressive. It is based on Shuddha Mela in ascent and on No-Mela in descent. The Amsas are Sa and Pa. Its bases are, therefore, the First Modes of Primary First and Second Scales. The notes used in it are given below in Just Notation :

In ascent.

*Sa Ra *Ga Ma *Pa Da Na Sa^1...Prim. I, 1
9 8 5 9 8 9 5

In descent.

*Sa Ra Ga Ma *Pa Da No Sa^1...Prim. II, 1

The notes Ra and Ma, which make a false Third, are connected by braces overhead. Of these Ra is omitted in ascent and Ma in descent. Da is also omitted in ascent. The ascending Nyāsa Tāna is hexachordal and starts with Ga, the Madhya Amsa of Primary First Scale. The descending Upānta Tāna is tetrachordal.

Lakshanas :

(1). **Grāmas**—Mukhya Prathama in ascent and Mukhya Dvitîya in descent.
(2) **Murchhanā**—Prathamā.
(3). **Amsas** - Sa and Pa.
(4). **Varjita Swaras**—Ra and Da in ascent.
(5). **Nyāsa**—Sa^1.
(6). **Apanyāsa**—Pa.
(7). **Vishishta Tānas :**

Nyāsa Tāna—	Ga	Ma	Pa	Na	Sa^1
Upānta Tāna—	Sa^1	(Ra^1)	No	Da	Pa

Puraka Tānas :

(1). Da Ma Ga ;
(2). Pa Ga Ra Sa ;
(3). Sa Ga Ma Ga ;
(4). Pa Na Sa^1

The Nyāsa Tāna is based on Hexachordal Cadence-Norm No. 21 (c)—Ga Na Sa^1. Khāmbāj is an ascending hexachordal Rāga sung in night.

7. GAUD SĀRANGA.

[Prim. I, 1—Shuddha (1) Mela.]

Gaud Sāranga is one of those few Rāgas, which have a Trichordal Cadence Phrase. It is based on the Shuddha Mela, Mi being sometimes used chromatically. It belongs to the First Mode of Primary First Scale. The Amsas are Sa, Ga and Pa. In Just Notation its notes are as follows :

*Sa Ra *Ga Ma *Pa Da Na Sa^1...Prim. I, 1.
9 8 5 9 8 9 5

This Rāga is hexatonic both in ascent and in descent, Ra being omitted in ascent and Ma in descent. The Cadence Phrase is trichordal, ascending and oblique.

Lakshanas :

(1). **Grāma**—Mukhya Prathama.
(2). **Murchhanā**—Prathamā.
(3). **Amsās**—Sa, Ga and Pa.
(4). **Varjita Swaras**—Ra in ascent and Ma in descent.
(5). **Nyāsa**—Ga.
(6). **Apanyāsa**—Sa.
(7). **Vishishta Tānas :**

Nyāsa Tāna—Sa (Ga) Ma Ga
Upānta Tāna—Pa Ga Ra Sa

The Nyāsa Tāna is based on Trichordal Cadence-Norm No. 2(a)—Sa Ma Ga.

The Adhara Amsa Sa is the Vādî and the Uttara Amsa. Pa is the Apa-vādî. The Nyāsa Tāna is almost always amplified, thus : Sa Ga Ma Ră Ma Ga. The oblique use of Ră gives to the Rāga a peculiar flavour and beauty. The false Third between Ra and Ma is made a true Minor Third by lowering Ra by an Anushruti. The oblique use of Ră brings the Upanta Swara Ma to prominence. It is sometimes repeated thus : Sa Ga Ma Ră Ma Ră Ma Ga. Mi is sometimes used obliquely as a Minor Third below Da in order to make an Āvarta Alankāra to Pa, the Apa-vādî, thus : Pa Da Mi Pa. Modulations to two different Scales have to be made for the two oblique uses of Ră and Mi. The note Ră converts the First Mode of Primary First Scale to the Third Mode of Primary Fourth Scale and the note Mi converts the latter to the Third Mode of Primary Third Scale, the Amsas of both the latter Modes being Ga and Da.

Gaud Sāranga is an oblique ascending and trichordal Rāga. It is difficult to say how this Rāga came to be called Sāranga, with which it has no semblance. It is allied to Rāga Bihāg, the Nyāsa Tānas of both being based on different forms of the same Cadence-Norm. It should be sung in night like Bihāg, though customarily it is sung in noon.

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8. SĀHĀNĀ.

[Prim. III, 1.—No-Go (3) Mela.]

Sahānā is a beautiful Rāga, sung usually on marriage and

other festive occasions. It is of Persian origin, as it appears from its name. Being of complicated structure, it is difficult to sing it correctly. The few Hindusthanî compositions found in the published books are mostly wrong in structure. The spirit of the Rāga is fairly well expressed in a Bengali song of poet Tagore[4]. It is based on No-Go-Mela, and has Sa and Pa as its Amsas. Its basis is, therefore, the First Mode of Primary Third Scale. Its structure is remarkable as it is pentatonic both in ascent and in descent, the second and the sixth notes being omitted in ascent and the fourth and the seventh notes being omitted in descent. The notes used in the Rāga are given below in Just Notation :

*Sa	Ra	*Go	Ma	*Pa	Da	No	Sa[1]— Prim. III, 1.
9	5	8	9	8	6	8	

The Madhya Amsa Go, which is marked by an asterisk like the other two Amsas, is prominent in the Rāga, as one of the false Thirds Ra is omitted in ascent and the other Ma is omitted in descent.

Lakshanas :

(1). **Grāma**—Mukhya Tritiya.
(2). **Murchhanā**—Prathamā.
(3). **Amsas**—Sa, Go and Pa.
(4). **Varjita Swaras**—Ra and Da in ascent, and Ma and No in descent.
(5). **Nyāsa**—Sa.
(6). **Apanyāsa**—Pa.
(7). **Vishishta Tānas :**
Nyāsa Tāna—Pa Sa[1] No Sa[1].
Upānta Tāna—Sa[1] Da Pa Da Ma Pa.

Puraka Tānas :
(1). Sa[1] Da Pa Ma Pa Go.
(2). Pa Go Ra Sa.
(3). Sa Go Ma.

The Nyāsa Tāna is based on Tetrachordal Cadence-Norm No. 9 (e)—Pa No Sa[1].

The first Puraka Tāna is almost as important as the Vishishta Tānas, as it concludes with the Madhya Amsa Go, which is thus brought to prominence. The second Puraka

4. The song begins with the words "Dekechhena Priyatama".

Tāna, which ends with Sa, with its open descending Major Third Pa-Go in it has a semblance with the descending Characteristic Phrase of Kānādā. It is probably owing to this slight similarity that Sāhānā has been considered as a variety of Kānādā. The structure of the two Rāgas are fundamentally different, as the Characteristic Phrases of Sāhānā are situated in the Uttarānga, while those of Kānādā are situated in the Purvānga. The semblance of the aforesaid Puraka Tāna of Sāhānā with a Vishishta Tāna of Kānādā is superficial, because the former concludes with Sa and the latter with Ra, these notes being the Amsas of their respective Rāgas. The Open Minor Third Mā-Ra which is essential for Kānādā is not possible in Sāhānā, in which Ma and Ra make false Thirds with each other. The much-talked-of Gāndhāra Āndolana of Kānādā is impossible in Sāhānā as the note Ma has to be omitted in descent in that Rāga. The other so-called distinctive feature of Kānādā, viz., No-Pa Sangati is also absent in Sāhānā, as No has to be omitted and Da is essential in descent of that Rāga. There is, therefore, no justification for considering Sāhānā as a variety of Kānādā. The same remarks are also applicable to some of the so-called varieties Kānādā.

The Nāyaka Swara No of the Nyāsa Tāna of Sāhānā is to be taken obliquely with the Nyāsa Sa[1] in order to make the Final Phrase conclusive.

Illustration :

Rāga-Sāhānā.
Tāla-Jhāmptāla.

Āsthāyî : **Hararanga.**

*S[1].No. S[1]: | 0D: D: P: | /D: M: | 0P: P: P: ||
A - - - - ba gu - - na bha - - ryo..... sa - - ka - - la

+D: S[1]: | 0D: -: P: | /M: P: | 0Go: -: -: ||
hu - - - un nā - - - - - tha me - - - - - re.....

+Go: M: | 0P: -: P: | /Go: Go: | 0R: -: S: ||
a - - - na - - - no..... sa - - ma - - jha mā - - - pha

+S: -: | 0M: -: M: | /P: S[1].No. | 0S[1]: -: -
kî - - - - - je..... gha - - ne - - - - - - - re.....

Antarā :

+ P: M: | 0 P: No: No: | / Ṡ¹: No: | 0 Ṡ¹: –: Ṡ¹: ||
Tu- - ma vi - - na ka - - va - - - na hā - - - - re

+ No: Ṡ¹: | 0 Ṙ¹: –: Ṡ¹: | / Ṅo: Ṡ¹: | 0 Ḋ: P: –: |
bha - - va pha - - - - nda me - - - - - - - re .....

+ P: No: | 0 D: D: P: | / D: M: | 0 P: –: P: ||
na- - ti ka - - ra - - ta Ha - - ra - ra - - - - - nga

+ D: Ṡ¹: | 0 D: D: P: | / M: P: | 0 Ġo: -: -: ||
gā- - - - - ya gu - - na te - - - - - re.....

+ Ġo: M: | 0 P: -: P: | / Ġo: Ġo: | 0 R: -: S: ||) etc. as in
a- - - pa- - no..... sa - - ma- -jha mā - - -pha) Āsthāyî

This song is an adaptation of the composition of Hararanga given in K. P. M. VI, 190. Material alteration has been made in it. Start has been taken with Ṡ¹ of the upper octave, which is the Nyāsa and the Apavādî ; and the final *Sam* has been placed on it. The most important change is that made in the last line. The Nyāsa Tāna, which is wanting in the composition, has been placed at the end of that line.

9. BĀHĀR.

[Prim. III, 1. & Sec. I, 1.—No-Go (3) and Go (8) Melas]

Bāhār Rāga is based on the First Mode of Primary Third Scale. It is sung in No-Go Mela. The Amsas are Sa and Pa.

It is a majestic Rāga and very popular. Its structure being of a complicated zigzag character, it is apt to be mixed up with other Rāgas. As a consequence some hybrid Rāgas have come into being, which bear its name.[5] The notes used in it are given below in Just Notation :

* Sa	Ra	Go	Ma	* Pa	(Da)	No	Sa′—Prim.
9	5	8	9	8	6	8	III, 1

Da is omitted both in ascent and in descent. It is, however, used obliquely in ascent, always keeping the Minor Third inter-

5. Strange mixtures like Bhairava-Bāhar and Vasanta-Bāhār are found, in which Rāgas of different Modes and Scales are arbitrarily mixed up.

val between Pa and No open. As in Āḍānā Ra is omitted in ascent and Go in descent. Go is used obliquely in descent; thus : PaGoMaRaSa

In ascent both Ra and Go are usually omitted, by the leap from Sa to its Fourth Ma. Conversion to Secondary First Scale is made in the ascending Nyāsa Tāna by the use of Na, the Major Third above the Vādî Pa. This use of Na in Bāhār is characteristic of the Rāga and is quite different from the chromatic oblique use of the note in Aḍānā, in which the interval of Fourth between Pa and Sa[1] must always be kept open. The Nyāsa Tānas of both Bāhār and Āḍānā are tetrachordal, having Pa and Sa[1] for Vadî and Nyāsa respectively. But, it is direct in the former, having Na as the Upānta Svara ; and it is oblique in the latter, having Ra[1] of the upper octave as the Upānta Svara, Na being sometimes used as a chromatic Minor Third below Ra[1].

Lakshanas:

(1). **Grāmas**—Mukya Tritiya in descent, and Gauna Prathama in ascent.
(2). **Murchhanā**—Prathamā.
(3). **Amsas**—Sa and Pa.
(4). **Varjita Swaras**—Ra and Da in ascent and Go and Da in descent.
(5). **Nyāsa**—Sa[1].
(6). **Apanyāsa**—Pa.
(7). **Vishishta Tānas :**

Nyāsa Tāna—Pa Ma Pa Go No Da Na Sa[1]
Upanta Tāna—Sa[1] No Pa Ma Pa.

Puraka Tānas—(1) Sa Ma Pa.
(2) Pa Go Ma Ra Sa.

These Puraka Tānas are also used in Rāga Āḍānā. It will be observed that there are some common elements in these two Rāgas. In spite of this, these two Rāgas are quite distinguishable from each other by the peculiar structure of their Characteristic Phrases. It is wrong to suppose that one Rāga is mixed with another, simply because there are common Puraka Tānas, as these must be kept in the background and the Characteristic Phrases brought to prominence. The Cadence Phrase of Āḍānā is simple in structure. That of Bāhār is complicated. In it

two consonant triads and one dissonant triad are most artistically combined. The consonant triads are Go Pa No and Ma Da Sa[1] and the dissonant triad which is the basis of the phrase, is Pa Na Sa[1]. The note No of this phrase is perfect Fifth of Go, but false Fourth of Ma. It must not, therefore, be taken directly after Ma to make the combination Ma No Da, which gives a false impression of the Perfect Phrase Ma Nŏ Da, which is the Cadence Phrase of Rāga Bāgeshrî[6]. In Bāhār No should be taken directly after Go. The omitted note Da should be taken obliquely after No as part of the consonant triad Ma Da Sa[1] ; thus : Ma Go No Da.

Bāhār is an ascending tetrachordal Rāga sung in night. The Nyāsa Tāna is based on Tetrachordal Cadence-Norm No. 10 (e)—Pa Na Sa[1].

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10. ĀḌĀNĀ.

[Prim. IV, 1 —No-Go-Do (4) Mela.]

Rāga Āḍānā is based on the First Mode of Primary Fourth Scale which is represented by No-Go-Do Mela. Some

6. Bhatkhande supposes that there are elements of Rāgas Bageshrî and Aḍānā in Rāga Bāhār, as will appear from the following verse of his Lakshya Sangîta :

"आरोहे मधसंगत्या वागीश्वयगमाश्रयेत् ।
अवरोहे धलुप्तत्वादडाणांगं प्रदर्शयेत् ॥"

In Rāga Bāgeshrî Ma is followed by Da in the combination Ma Nŏ Da, which is the Cadence Phrase of that Rāga, as stated above. The flat seventh (Nŏ) of that Rāga is perfect Fourth above of its Lower Tonic Ma ; while the corresponding note (No) of Rāga Bāhār is Minor Third above Pa, the Upper Tonic of the latter Rāga.

We have seen above that the false Cadence Phrase of Bāgeshrî (Ma No Da) has to be avoided by taking No after Go and not after Ma. To say that Bāhar contains an element of Bāgeshrî is only to create confusion between two distinct great Rāgas. The presence of an element of Āḍānā in Bāhar is also a misconception, because in the former the interval of Fourth between Pa and Sa[1] has to be kept open, while in the latter the interval of Minor Third between Pa and No is kept open.

authors put it in No-Go Mela. This difference of opinion arises out of the uncertainty as to whether the sixth note, which is omitted both in ascent and in descent, is Da or Do. But, as there are many compositions of the Rāga in which Do is used obliquely and as no such use of Da is found in any composition, the proper Mela for the Rāga must be taken to be No-Go-Do. The Amsas being Sa and Pa, the Mela stands for the First Mode of Primary Fourth Scale. The notes used in the Rāga are shown below in Just Notation :

Sa Ra Go Ma Pa (Do) No Sa^1—Prim IV, 1.
9 5 8 9 5 9 8

While Do is always omitted in direct progression, the false Third is avoided in ascent by omitting Ra. In descent the rule of continuous consonant thirds is observed by omitting Go. Conversion to Secondary Second Scale is sometimes made by chromatic use of the note Na in the ascending Cadence Phrase, as shown below.

Lakshanas :

(1) **Grāma**—Mukhya Chaturtha.
(2). **Murchhanā**—Prathamā.
(3). **Amsas**—Sa and Pa.
(4). **Varjita Swaras**—Ra and Do in ascent and Go and Do in descent. Do can be used obliquely in descent.
(5). **Nyāsa**—Sa^1.
(6). **Apanyāsa**—Pa.
(7). **Vishishta Tānas :**

Nyāsa Tāna—Pa Sa^1 No Sa^1.
Upānta Tāna—Sa^1 Ma Pa.

These are only skeleton forms of the Tānas. Beautiful variations of these Tānas may be had by introducing other notes in them. The Nyāsa Tāna may have the forms :

(1). Pa Sa^1 Ra^1 No Sa^1.
(2). Pa No Pa Sa^1 Ra^1 No Sa^1.
(3). Pa Sa^1 Na Ra^1 No Sa^1.
(4). Pa No Pa Sa^1 Na Ra^1 No Sa^1.

Modulation to Secondary Second Scale referred to above

is made by introduction of Na in forms Nos. (3) and (4). The Upānta Tāna may have the forms :

(1). Sa[1] Pa Ma Pa
(2). Sa[1] Pa No Pa Ma Pa
(3). Sa[1] Pa No Pa Ma Go Ma Pa.

The interval of perfect Fourth between Pa and Sa[1] must always be kept open.

The Nyāsa Tānas of this Rāga and Rāga Bahār are both ascending and tetrachordal ; and the Upānta Tānas of these two Rāgas are both descending and tetrachordal. The starting and the concluding notes of these Tānas in both are either Pa or Sa[1]. The distinction between these Tānas will be found in the marked difference of their structure. The Puraka Tānas of Adāna are :

(1). Sa Ma Pa ;
(2). Pa Go Pa Ma Ra Sa, and
(3). Sa[1] No Do No Pa Do Ma Pa.

The first two of these are also used as Puraka Tānas of Rāga Bāhār. The third in which Do, the distinctive note of Primary Fourth Scale is used, is found in some compositions of the Rāga. Ādāna is, like Bāhār, an ascending Tetrachordal Rāga sung in night. Its Nyāsa Tāna is based on tetrachordal Cadence-Norm No. 9 (e)—Pa No Sa[1]. The Minor Third above the starting note is to be taken obliquely with the concluding note in order to make the cadence conclusive.

The Cadence-Norms of Adāna and Sāhānā are the same. But, in the latter it is always used in its simple form, but not so in the former.

11. JAUNPURÎ.

[Prim. IV, 1.—No-Go-Do (4) Mela.]

Rāga Jaunpurî is based on the First Mode of Primary Fourth Scale It is sung in No-Go-Do Mela. The Amsas are Sa and Pa. It is a simple and popular morning Rāga. Basically it has much affinity with Rāga Ādāna. Both are based on the same Mode of the same Scale. Their Characteristic Phrases too are formed out of the tetrachord in the

upper part of the Scale. They are, however, quite distinguishable from each other by the ascending or the descending character of their Nyāsa Tānas. The notes used in Jaunpurî are given below in Just Notation :

Sa Ra Go Ma Pa Do No Sa¹—Prim. IV, 1.
9 5 8 9 5 9 8

Lakshanas :

(1). **Grāma**—Mukhya Chaturtha.
(2). **Murchhanā**—Prathamā.
(3). **Amsas**—Sa and Pa.
(4). **Varjita Swaras**—Go and Do in ascent and Ma in descent. Do is used in ascent obliquely with No.
(5). **Nyāsa**—Pa.
(6). **Apanyāsa**—Sa¹.
(7). **Vishishta Tānas :**
Nyāsa Tāna—Sa¹ No Do Pa Ma Do Pa
Upānta Tāna—Pa No Do No Sa¹.

Puraka Tānas : (1). Pa Go Ra Sa
(2). Sa Ra Ma Pa

Jaunpurî is a descending tetrāchordal Rāga sung in morning. Its Nyāsa Tāna is based on Tetrachordal Cadence-Norm No. 13(a)—Sa¹DoPa.

Illustration :

Rāga—Jaunpurî.

Tāla—Tritāla.

Āsthāyî :

P.M. P: No.Do. No: | Ṡ¹: No Do. P.M. Do: ||
Phu - - la - - va - - na - - - kî gen - - - - - - - da

Ṗ: Go: R: S: | Ṙ M. P: Do.M. P : |
ma - - i - - kā na mā - - ro re.....

Antarā :

Ṗ: M: P: P: | Ṅo: Do: No: -: || Ṡ¹: -: S¹: S¹:
Nā..... ma - na jā - - - - - - nu ..... ko... ma-na

Ṡ¹: No: S¹: S¹: | Ṡ¹: R¹: Go¹: -: | Ṙ¹: S¹: -: -:
jā - - - - - nu ..... kān - - - son ..... ka - - hun .....

Ṡ¹: No: -: S¹: | Ṡ¹.No. Do P. M.Do. P: |
nu - - kā - - - ra re.....

This is an adaptation of the composition given in K.P.M.III, 658 materially modified both in arrangement of notes and in time-measure.

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12. ĀSĀVARÎ.

[Prim. IV, 1.—No-Go-Do(4)Mela.]

Rāgā Āsāvarî is based on the First Mode of Primary Fourth Scale. The Mela used in it is No-Go-Do. The Amsas are Sa and Pa. This Rāga is often confused with Jaunpurî, which is also based on the same Mode of the same Scale. They are, however, quite distinguishable from each other, as the former has its Characteristic Phrases placed in the lower part of the Mode-octave, while those of the latter are placed in its upper part. Both are morning Rāgas, as their Nyāsa Tānas are descending in character. The notes used in Āsāvarî are as follows in just Notation :

*Sa Ra *Go Ma *Pa Do No Sa¹ — Prim. IV, 1
9 5 8 9 5 9 8

In pursuance of the rule of consonant thirds Go is omitted in ascent and Ma in descent.

Lakshanas :

(1). **Grāma**—Mukhya Chaturtha.
(2). **Murchhanā**—Prathamā.
(3). **Amsas**—Sa and Pa.
(4). **Varjita Swaras**—Go in ascent and Ma in descent.
(5). **Nyāsa**—Sa.
(6). **Apanyāsa**—Pa.
(7). **Vishishta Tānas :**

Nyāsa Tāna—Pa Go Ra Sa.
Upānta Tāna—Sa Ra Ma Pa Do Pa.
Puraka Tāna—S¹ Do Pa Ma Pa.

The Upānta Tāna can be amplified in different ways, as :

(1) Sa Ra Ma Pa Do Ma Do Pa ;
(2) Sa Ra Ma Pa No Do Pa ;
(3) Sa Ra Ma Pa No Do Ma Do Pa.

The second of the above forms is most often used.

A comparison between Āsāvarî and Jaunpurî will show, that while Sa is the Nyāsa of the former, that note in the upper octave (Sa^1) is the Vādî of the latter, and that, while Pa is the Vadî of the former, it is the Nyāsa of the latter. There need be no confusion between the two Rāgas, if these features are always kept in view. Āsāvarî is a descending pentachordal Rāga sung in the morning. Its Nyāsa Tāna is based on Pentachordal Cadence-Norm No. 18(d)—Pa Ra Sa.

Illustration :

Rāga — Āsāvarî.

Tāla — Surphāktā or Sula Tāla.

Āsthāyî. **Tānasena.**

*S: R: M: P: | 0-: P: | /No: No: Do: P: |
Pra-tha-ma nā - - - -da sa - -ra - - swa - tî

+P: Do: M: P: | 0P: Go: | /R: -: S: -: ||
ga - na - - pa - ti bu - dha - dā - - - tā.....

Antarā :

+P: M: P: P: | ̆No.Do. Do: | /S¹: S¹: S¹: S¹: ||
Jā - - - - ki kri - pā - - - - se a - - na - dha - na

+S¹: -: R¹: No: | 0S.Go¹. Go¹: | /R¹: No: Do: P: |
la - - - - chhmî pā - - -la - - - - na ka - - ra sa - va

+M: P: No: Do: | 0M: P: | /Go: R: S: -: ||
ja - - - - ga... ..... trā - - - - tā.....

Sanchārî

-: R: No_1.Do_1. : P_1: | No_1: -: R: S:
- - -i jo - - - - - - - i dhyā - - - va - ta

S: R: M: M: | ̆P: -: | No: Do: M: P: ||
ma - na pha-la pā - - - va - - - - - - - - ta

+P: Do: P: M: | 0P.S¹. No.S¹. | /No: Do: P: M: |
sa - va gu - ni ja - - - na - - - -ko..... de - ta

+M: P: No: Do: | 0P: Go: | /R: -: S: -: ||
vi - - - - -dhā - tā.....

Ābhoga :

+ 0 /
P: M: P: -: | No: Do: | S¹: No: S¹: ·
Tā--na - se - - - - na..... pra - - - - -bhu.....
+ 0 /
Ṡ¹: Ṙ¹: Ġo¹: -: | Ṙ¹: Ṡ¹: | Ṙ¹: No: Do: P: |
ju - - ga ju - - - - - ga..... jî - - - - - - vo.....
+ 0 /
P: Do: M: P: | Ṙ¹: Ṡ¹: | No: Do: P: -: |
cha-ra - -na..... ka - - - - -ma - - - - - - la.....
+ 0 /
P: No: Do: P: | M: P: | Ġo: -: R: S: ||
ran - - - - -ga - - - - - -rā - - - - - tā.....

This is an adaptation of the composition by Tānasena given in "Sangeet Jnan Prabesh" (P. 104) by Satya Kinkar Bandopadhaya. It begins with the Upānta Tāna and ends with the Nyāsa Tāna. The second degree of the Mode used in this composition as recorded in the book is the flat note Rŏ. This is an obvious mistake. Flat Ra cannot be used either in the Nyāsa Tāna or in the Upānta Tāna, because it is badly dissonant to the Vādî and Apanyāsa Pa, with which the Nyāsa Tāna starts and the Upānta Tāna concludes. The Nāyaka Svara of the Nyāsa Tāna must be natural Ra, which is perfect Fourth below the Vādî Pa. This mistake is an instance of deterioration which many classical compositions have suffered in course of oral transmission through generations. It should be pointed out that use of flat Ra in Āsāvarî makes it indistinguishable from Bilāskhānî Todî, in which the descending Nyāsa Tāna starts with the Vādî Do, which is perfect Fifth above Rŏ, the Nāyaka Svara of that Tāna.

13. BHUPĀLÎ.

[Prim. IV, 1.—No-Go-Do (4) Mela.]

Bhupālî is based on the First Mode of Primary Fourth Scale. The current practice is to write it in the Shuddha Mela. The Mode-octave used in it is Da_1 to Da, and the Amsas are Da and Ga. The notes Ma and Na are omitted. If Da_1 is converted to Sa, the Common Initial of Melas, and the other notes are con-

verted accordingly, we get the No-Go-Do Mela. The correct form is given below in Just Notation, together with the current form :

Correct form : Sa [Ra] Go Ma Pa (Do) No Sa¹ — Prim. IV, 1.
9 5 8 9 5 9 8

Current form : Da₁ [Na₁] Sa Rā Ga (Ma) Pa Da
9 5 8 9 5 9 8

In its correct form the Amsas of this Rāga are Sa and Pa. The Mode used is, therefore, the First. The omitted notes are Ra [Na₁] and Do [Ma], which are put within brackets. If the omitted sixth note be taken to be Do (Ma) the Scale of the Rāga would be the Primary Fourth and if it be taken to be Da (Mi), the Scale would be the Primary Third[7]. The former note can be used obliquely in ascent and the latter obliquely in descent as chromatic notes. But, the true character and solemnity of the Rāga is preserved in its pentatonic form only.

Characteristic Features :

(1). **Scale**—Primary Fourth.
(2). **Mode**—First.
(3). **Tonics**—Sa [Da₁] Go [Sa] and Pa [Ga].
(4). **Omitted notes**—Ra [Na₁] and Do [Ma].
(5). **Final**—Pa [Ga].
(6). **Semi-final**—Go [Sa].
(7). **Characteristic Phrases :**

Cadence—Sa Ma Go Ma Pa [Da₁ Rā Sa Rā Ga].
Penultimate—Sa¹ (No) Pa Ma Go
[Da (Pa) Ga Rā Sa].

Puraka Tānas :

(1). Pa No Sa¹ [Ga Pa Da].
(2). Sa¹ No Pa Ma Pa [Da Pa GaRāGa].

The Cadence Phrase is based on Pentachordal Cadence Norm No. 15(a)—Sa Ma Pa.

Bhupālī is, like Kedāra, a pentachordal Rāga, as its Nyāsa Tāna is pentachordal in character. Sa [Da₁] is the Vādī and Sa¹

7. In Bhatkhande's books this Rāga is placed in Mi-Mela (Kalyāna That). There is no reason why it should be placed in Primary Third Scale and not in Primary Fourth Scale, which is one of the two best Scales.

[Da] is the Apavādî. It is sung in night, as its Nyāsa Tāna is ascending in character. The Minor Third Go [Sa] above the Vadî Sa [Da_1] is to be taken obliquely with the Fourth Ma [Rā] above it in order to make the phrase conclusive.

II. SECOND MODE.

(Amsas Ma and Nŏ.)

14. MEGHA.

[Prim. I, 2.—No-Go (3) Mela.]

Megha, which is sometimes also called Megha Mallāra, is a Rāga allied to Mallāra and both are appropriate for the rainy season[8]. Though Megha is a sublime Rāga of ancient

8. Since the Rāga-Rāginî classification came into vogue in the medieval period these two Rāgas have been closely associated with each other. According to the schools of Shiva and Hanumat, Megha is a Rāga and Mallāra is one of his Rāginîs. According to Rāgārnava Mallāra is a Rāga and Megha-mallārikā is one of its Ashrita (dependant) Rāgas. According to Lochana Megha is one of the twelve Samsthānas (i.e. Melas) and Mallāra is put in that Mela. According to all these views Megha and Mallāra are two different but allied Rāgas. In his description of Mallāra Ahobala states that it is also called Megha, because it is sung in the rainy season. According Ahobala Megha is, therefore, only an attributive of Mallāra, which is the real name of the Rāga. All southern books mention only Mallāra, except Rāga Lakshana, which mentions a Megha which is quite different from northern Megha. Ahobala and southern writers were evidently ignorant of northern Megha as a Rāga distinct from Mallāra. According to Lochana and his follower Hridaya Narayana Megha Mela, on which the Rāgas Megha and Mallāra were based, had no Dha in it. In the description of these Rāgas given in Hridaya Kautuka, Ga is omitted in both of them. It thus appears that the notes Ga and Dha were omitted in both these Rāgas. They were, therefore, of the same character as modern Megha. Modern Mallāra omits Ga and Na. Mallāra of Ahobala also omits these two notes. Modern Mallāra may, therefore, be said to have come into existence from about the time of Ahobala. Though Megha

fame, it is seldom sung and is known to very few modern musicians.

This Rāga is often spoken of as a variety of Rāga Mallāra. But, it must be remembered that Megha is one of very few most ancient Rāgas, which have survived at least in name. It is one of the original twenty Rāgas mentioned by Shārngadeva and also one of the six Rāgas according to the schools of Shiva and Hanumat. Megha as a Rāga is quite distinct from Mallāra. Though there is some similarity in the structure of their Characteristic Phrases, those of Megha are situated in the Uttarānga and those of Mallāra in the Purvānga. The most important point of similarity between the two Rāgas is that the Cadence Phrases of both are ascending and oblique in character. The difference is that the Cadence Phrase of Megha is tetrachordal and that of Mallāra is trichordal. The structure of the Cadence Phrase of Megha is quite similar to that of Gauḍ Mallār. The Vādî of Megha is Ma and its Nyāsa is Nŏ, whereas the Vādî of Mallāra is Rā and its Nyāsa is Ma. Megha Rāga is based on the Second Mode of Primary First Scale. Its Amsas are Rā, Ma and Nŏ. The notes used in it are given below in Just Notation :

Sa Rā [Gŏ] Ma Pā (Da) Nŏ Sa[1]—Prim. I, 2.
8 5 9 8 9 5 9

The notes Gŏ and Da are omitted in this pentatonic Rāga.

Lakshanas :

(1). **Grāma**—Mukhya Prathama.
(2). **Murchhanā**—Dvitiyā.
(3). **Amsas**—Rā, Ma and Nŏ.
(4). **Varjita Svaras**—Gŏ and Da.

Rāga is sometimes called Megha-Mallāra, it is not included in the list of twelve Mallāras authorized by the Akhil Bharatiya Parishad held in Delhi. The Parishad evidently considered Megha as a Rāga unrelated to Mallāra. Bhatkhande treats Megha as one of the Aprasiddha (uncommon) Rāgas and gives eleven compositions of it in the sixth volume of his K.P.M. The illustration of the Rāga given below is included in these. A different version of this song is found in Sangîta Manjarî.

(5). **Nyāsa**—Nŏ.
(6). **Apanyāsa**—Ma
(7). **Vishishta Tānas :**

Nyāsa Tāna —Ma Pă Sa[1] Nŏ.
Upānta Tāna —Nŏ Pă Ma.

Puraka Tānas : (1). Ma Ră Să
(2). Ră Pă Ma.
(3). Sa Ră Go Ră Ma.

The Nyāsa Tana is based on Tetrachordal Cadence-Norm. No. 11(d)—Ma Sa[1] Nŏ.

Ma is Vādî and Apanyāsa and Nŏ is Apa-Vādî and Nyāsa. Megha is an ascending tetrachordal Rāga sung in night. It is considered to be also appropriate for the rainy season on account of the oblique ascending character of its Nyāsa Tāna, like Mallāra. It has, however, greater affinity with Raga Gaud Mallara, as both these Rāgas have the same Cadence-Norm in different positions.

Illustration :

Rāga—Megha.

Tāla—Jhāmptāla.

Tānasena.

Asthāyî.

*S[1]: S[1]: | 0Nŏ: Nŏ: Nŏ: | /Nŏ: Pă: |
Pra - - ba - - la - - da - - la me - - - -

0Pă: Pă: M: | +Pă: Nŏ: | 0Pă: M: Pă: |
-gha jhu - ka jhu - - - - - ma ā - - - yo

/M: Ră: | 0Ră: Ră: S: || +M: Ră: | 0M: Pă: Pă: |
bhu - - - - ma pa - - ra u - - - ma - - da gha - - na

/Nŏ: Pă: | 0Pă: Pă: M: || +Pă: Nŏ: | 0S[1]: Nŏ: Pă: |
gho - - - - - ra jha - - di i - - - - - - - - - - - - - - ndra

/M: Pă: | 0Nŏ: M: Pă: || (*S[1]: S[1]: | Nŏ:)
la - - - - - yo..... (pra - - ba - - la)

Antarā :

+ M: Pa: | 0 Nŏ: Nŏ: Nŏ: | / S¹: S¹: 0 S¹: -: S¹: ||
Ba- - ra - - kha - - ta mu - - sha - - la dhā - - - ra

+ Rĕ¹: M¹: | 0 Rĕ¹: -: S¹: | / Nŏ: S¹: | 0 Nŏ: -: Pă: |
ho - - - - - - - ta..... pa - - ha - - ra chā - - - - ra

+ Rĕ¹: Rĕ¹ 0 M¹: M¹: M¹: | / S¹: Rĕ¹: | 0 Rĕ: M: Pă: ||
kri - - - - - - - shna gi - - - ri - - dha - - ra go - - ku - - la

+ Nŏ: S¹: | 0 Nŏ: -: Pă: / M: Pă: | 0 Nŏ: M: -: ||
ko..... ba - - chā - - - - yo.....

Sanchārî :

+ Nŏ₁: Nŏ₁: | 0 Gŏ: Rĕ: Rĕ: | / M: M: | 0 Pă: Pă: -: ||
Bun - - da - - - na dha - - ra - - nî - - - - - dha - - ra.....

+ M: Pă: | 0 Nŏ: -: S¹: | / Nŏ: Pă: | 0 Nŏ: Pă: M: ||
sa - - va - - hî - - - - ki ra - - chhā ka - - - - - - ra

+ M: Rĕ: | 0 M: -: Pă: | / Pă: M: | 0 M: -: Rĕ: |
pa - - shu pa - - - - nchhi ja - - la tha - - - la

+ Rĕ: S: | 0 Rĕ: M: Pă: | / Nŏ: M: | 0 Pă: -: -: ||
a - - - ti su - - - - - kha pā - - - - - yo.....

Ābhoga :

+ M: Pă: | 0 Nŏ: Pă: Nŏ: | / S¹: Nŏ: | 0 S¹: S¹: -: ||
Tā - - na - - se - - - - - na - - ke..... pra - - bhu.....

+ Rĕ: Rĕ: | 0 Rĕ: M: -: | / S¹: Nŏ: | 0 S¹.Nŏ. Pă: -: |
te - - - ri ga - - ti..... a - - - da - - bhu - - - ta.....

+ Rĕ¹: Rĕ¹: | 0 Rĕ¹: M¹: -: | / Rĕ¹: S¹: | 0 S¹: -: Nŏ: |
su - - - ra - - pa - - - ti a - - dhi - - na ho - - - - - ya

+ Nŏ: S¹: | 0 Nŏ: Pă: Pă: | / M: Pă: | 0 Nŏ: M: -: ||
shî - - - - - - sha..... na - - vā - - - - - yo.....

The Dhrupad compositions of Megha given in K. M. P. VI, p. 235-237 and in Sangîta Manjarî p. 349-353 are evidently different versions of the same song. Strangely enough, the composition is attributed to Hara Nātha in the former book and to Tānasena in the latter. The language of the version of Sangîta Manjarî is much more chaste and correct. We have, therefore, adopted this version so far as the language is concerned. This version is also superior in its structural beauty and in elaborate treatment. It has, however, deviated materially from the true character of Rāga Megha by the use of Shuddha Ni throughout the composition. In this respect the K. P. M. version is superior, inasmuch as flat Ni is used in it throughout. That the seventh note is considered to be the most important note of the song in Sangîta Manjarî is evident from its use as the Nyāsa, on which the Dhā of the drum is enjoined to be placed. But, Shuddha Ni cannot be an Amsa of the Rāga as it is badly dissonant to Ma which is the Apanyāsa. It must, be flattened by a Semitone and made Nŏ, which is Perfect Fourth above Ma, in order to make it fit to be used as Amsa and Nyāsa. We have, therefore, made this essential alteration in the song reproduced above. The final *Sam* mark has, however, been placed on Sa[1] as in K. P. M., because there is a natural tendency to strongly accentuate the highest note of an ascending phrase. But, as the Nyāsa Tāna of Megha is an oblique ascending phrase, in which Sa[1] is the Upānta Svara and Nŏ is the Nyāsa Svara, conclusion must be made on the latter note by descending a step below the former.

15. JAIJAYANTÎ.

[Prim. IV, 2 and III, 2.—No-Go-Do-Ro (5) and No-Go-Do-Ro-Po (6) Melas]

Jaijayantî is a difficult Rāga of solemn character, said to be based on No-Go-Mela, in which Ga is also used. Ga is used in ascent and Go in descent. The Amsas are Ra and Pa. The Mode used in ascent is, therefore, the Fourth Mode of Primary

Third Scale and that used in descent is Fourth Mode of Primary Fourth Scale. But, as the actual Mode-octave used in the Rāga starts with the Initial Da_1 of the lower octave, the correct Mode-number is Two of these Scales. The notes of the correct Modes are given below in Just Notation, together with those of the customary Modes :

In ascent

Correct Mode :	Sa	Rŏ	[Gŏ]	*Ma	Pŏ	Do	*Nŏ	Sa^1	Prim. III, 2.
	5	8	9	8	6	8		9	
Customary Mode :	$Dâ_1$	No_1	[Sa]	*Ra	Ga	Mâ	*Pa	Dâ	
	5	8	9	8	6	8		9	

In descent

Correct Mode :	Sa	*Rŏ	[Gŏ]	*Ma	Pŏ	Do	*Nŏ	Sa^1	Prim. IV, 2.
	5	8	9	5	9	8		9	
Customary Mode ;	$Dâ_1$	*No_1	[Sa]	*Ra	Go	Mâ	*Pa	Dâ	
	5	8	9	5	9	8		9	

The first and the third notes, which make false Third with each other, are marked by braces overhead. It will be observed that the note Sa of the customary forms to which the Tānpurā is always tuned is, in fact, the omitted note of the Mode. This shows the anomalous situation which is apt to be sometimes created by an improper use of Mela-Signature. The proper Mela-Signatures of the Rāga are No-Go-Do-Ro is ascent and No-Go-Do-Ro-Po in descent. It is very difficult to sing the Rāga correctly in the customary Mode-forms, as there is a natural tendency to make Sa, which is tuned to the main wire of the Tānpurā, prominent. The charcter of the Rāga can be correctly expressed only by either omitting Sa altogether or by using it obliquely, thus ; No_1 Ra Go Sa Ra, always keeping the interval No_1—Ra open. The notes Ga and Go of the customary Moe d-forms owe their importance as Thirds below Pa and

not as Thirds above Sa, which is an omitted note and can be used only as a Minor Third below Go, as shown above.

Lakshanas :

(1). **Grāma**—Mukhya Tritiya in ascent and Mukhya Chaturtha in descent.

(2). **Murchanā**—Dvitiyā.

(3). **Amsas**—Ma [Ra] and Nŏ [Pa].

(4). **Varjita Svara**—Gŏ [Sa], which can be used obliquely in descent with Ma [Ra].

(5). **Nyāsa**—Ma [Ra].

(6). **Apanyāsa**—Rŏ [No$_1$].

(7). **Vishishta Tānas :**

Nyāsa Tāna—Rŏ Pŏ Ma [No$_1$ Go Ra].
Upānta Tāna—Ma Sa Rŏ [Ra Dâ$_1$ No$_1$].

Puraka Tānas :

(1). Ma Pă Do Nŏ [Ra Ga Mâ Pa].
(2). Nŏ (Pă) Do Pŏ Ma
[Pa (Ga) Mâ Go Ra].

The Nyāsa Tāna is based on Trichordal Cadence-Norm No. 2(*b*) —Rŏ Pŏ Ma.

Both the Nyāsa and Upānta Tānas are trichordal and oblique. The best effect is produced by keeping open the intervals of fourth between Rŏ and Pŏ and between Ma and Sa. The omitted note Gŏ [Sa] can be used obliquely in the Upānta Tāna in relation to Pŏ, thus : Ma Pŏ Gŏ Ma [Ra Go Sa Ra]. It can also be used obliquely in the Antarā in relation to Sa [Dâ] by raising it by an Anushruti-Go [Sâ] and thus making a modulation to Primary First Scale, thus :

Do Sa^1 Go^1 Rŏ^1 Sa^1 [Mâ Dâ Sâ^1 No Dâ].

Jaijayantî is an ascending trichordal Rāga sung in night. It is also fit for the rainy season, as its Nyāsa Tāna has an ascending and oblique Cadence ending with Ma as that of Mallāra. The Cadence-Norms of the two Rāgas are similar in

structure, differing only in the character of the thirds above the starting notes. The song given below is meant for the rainy season.

Illustration :

Rāga—Jaijayantî

Tāla—Tritāla.

Āsthāyî :

/M. Pŏ. Gŏ M. S : Rŏ : | 0Rŏ : Rŏ : Pŏ : M : ||
Dā - - - - ma - - - - ni da - - ma - - - - - ke

*M: Pă: Do: Nŏ: | 0Pă: Do: Pŏ: M; |
da - - ra mo - - he lā - - - - - - - - - ge

/M: M: S: Nŏ: | 0Nŏ: Do: Pă: Do: |
u - - ma - - ge da - - - la bā - - da - - la

+Nŏ: Pă: -: Do: | 0Pŏ: M: -: -: |
shyā - - - - - - - - ma gha - - tā.....

Antarā :

M: M: Do: -: | 0Do: Do: Nŏ: -: ||
Li - - kha - bhe - - - - - - jo sa - - - khi.....

+Nŏ: Nŏ: S¹: -: | 0Do : Do: Nŏ: -: |
u - - - sa nao - - - - nda - - na - - ko.....

/Do: Do: S¹: -: | 0Go¹: Rŏ¹: S¹: -: ||
me - - ri kho - - - - - - la ki - - - ta - - -

+Nŏ: Pă: -: Do: | 0Pŏ: M: -: -: |
ba de - - - - kho bi - - - thā - - - - -

This is an adaptation of the composition given in K. P. M., IV, 278, written in notes of the correct Mode-octave.

III. THIRD MODE.

(Amsas Ga and Da or Go and Do)

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16. BILASKHANi TODî.

[Prim. 1, 3.—No-Go-Do-Ro (5) Mela.]

Of the two principal varieties of Todî, the Bilāskhānî is based on a Primary Scale and the Darbārî on a Chromatic Scale. Bilāskhānî is the simple and original form of Todî, from which the Darbārî and other chromatic varieties of the Rāga may be considered to be derived. Bilāskhānî is based on No-Go-Do-Ro Mela, on which Rāga Bhairavî is also based[9]. But, the Amsas of these Rāgas are differtnt, those of Bilāskhānî being Go and Do and those of Bhairavî Sa and Ma. The former is, therefore, based on the Third Mode of Primary First Scale, while tbe latter is based on the Fifth Mode of Primary Fourth Scale. Confusion is, however, often made between these two Rāgas, as a phrase or two of one these Rāgas can be used in the other. One of these Rāgas is apt to lapse into the other, unless these phrases are used cautiously. There need, however, be no confusion if the respective Amsas are clearly kept in view and brought to prominence. The Scales of each of these Rāgas has a third Amsa, viz the Madhya Amsa. The three Amsas of Bilāskhānî are Sa, Go and Do and those of Bhairavî are Sa, Ma and Do. As the two Amsas Sa and Do are common to both, Go must be made prominent in Todî and Ma in Bhairavî. Ma, being an optionally omissible note in Todî, may be either totally omitted or obliquely used in it in descent. In Ādi Bhairava, which is based on the same Mode of the same Scale as Bhairavî, Go is omitted altogether. Ma is to be made prominent in both the Rāgas. In some chromatic varieties of

9. It is interesting to note that the Rāga which is called Bhairavî in northern India is called Todî in southern India. Southern Bhairavî is a quite different Rāga based on No-Go-Do Mela.

Todî Ma is omitted altogether and Po is substituted for it as one of the double Thirds above the Amsa Go.

The most important difference between Todî and Bhairavî is that the Characteristic Phrases of the former are hexachordal and those of the latter are tetrachordal. There is no possibility of confusion between the two Rāgas if their respective Characteristic Phrases are clearly and prominently exhibited. The notes used in Bilāskhānî Todî are shown below in Just Notation :

*Sa Rŏ *Go Ma Pa *Do No Sa[1] — Prim, I, 3
5 9 8 9 5 9 8

The Mode used being the Third, it can be used in its full form. The optionally omissible notes Ma and No should, however, be never made prominent. In Darbarî Todî these notes are substituted by Po and So respectively.

Lakshanas :

(1). **Grāma**—Mukhya Prathama.
(2). **Murchhanā**—Tritîyā.
(3). **Amsas**—Sa, Go and Do.
(4). **Varjita Svaras**—None.
(5). **Nyāsa**—Sa.
(6). **Apanyāsa**—Do.
(7). **Vishishta Tānas :**

Nyāsa Tāna—Do Pa Go Rŏ Sa.
Upānta Tāna—Sa Go Ma Pa Do.

Do is Vādî and Apanyāsa ; and Sa is Apavādî and Nyāsa.

Bilāskhānî Todî is a descending hexachordal Rāga sung in morning. Its Nyāsa Tāna is based on Hexachordal Cadence-Norm No. 25(c)-Do Rŏ Sa. The open Major Third interval between Pa and Go makes the phrase conclusive.

17. HINDOLA, LAGHU.

[Prim, I, 3.—No-Go-Do-Ro (5) Mela.]

Hindola is one of the few most ancient Rāgas, which have survived till the present day at least in name, if not in their original forms. It is one of the thirty Grāma Rāgas mentioned by Shārngadeva. It is said to have been derived from Shadja-Kaishikî Jāti of Shadja Grāma and to have given rise to Rāga Vasanta, which was, as Shārngadeva tells us, also called Deshî Hindola. Close affinity between Hindola and Vasanta (Prāchya) as they are sung now is clearly discernible. It appears, however, that Hindola has lost its ancient popularity and is about to be forgotten. It is evidently due to the use of a wrong note. This is either the first or the fourth note. The Rāga is said to be based on Mi Mela, the notes Ra and Pa being omitted. The notes Sa and Mi, which are closely connected in many phrases of this Rāga, are badly dissonant to each other and make these phrases discordant. The note Mi used in the Upānta Tāna of the Rāga is dissonant to the Apavādî Ga and Apanyāsa Sa[1]. Either of the two notes Sa and Mi must, therefore, be altered in order to make them consonant to each other. In other words, either Mi must be flattened to Ma or Sa must be sharpend to Si, so that they may be Perfect Fourths to each other. Two alternatives Modes would result from these alterations.

These are :

(1). Sa × $\overset{*}{\text{Ga}}$ Ma × $\overset{*}{\text{Da}}$ Na Sa[1].

(2). Si × $\overset{*}{\text{Ga}}$ Mi × $\overset{*}{\text{Da}}$ Na Si[1].

If these two Modes are combined we get the Chromatic Mode :

(3). Sa Si $\overset{*}{\text{Ga}}$ Ma Mi $\overset{*}{\text{Da}}$ Na Sa[1].

Ga and Da are the Amsas of all these Modes. In the first the Amsas have open Major Thirds (Āyata Tritîya) below them,

in the second they have open Minor Thirds (Laghu Tritîya) below them and in the third they have double Thirds below them. All the three Modes are equally good and may be taken as the bases of Rāga Hindola. The second is equivalent to the basic Mode of ancient Hindola. It was based on the following Mode :

Pa_1 × No_1 Sa × Go Ma Pa

If we take Sa as the Initial note of this Mode we get :—

Sa × Go Ma × Do No Sa^1.

Raising each of these notes by a Semitone we get :—

Si × Ga Mi × Da Na Si^1

This is the second Mode of Hindola given above.[10] Modern Hindola, which is said to be based on Mi Mela, can be sung correctly if it is based on Si-Mi Mela, which is, as shown above, identical with the Mode in which ancient Hindola was sung. This should, therefore, be considered to be the correct Mela for modern Hindola. But, as all Melas must, according to the Mela system, have Sa as the Initial, all the notes are to be flattened by a Semitone. The notes Si and Mi by this alteration become Sa and Ma and the notes Ga, Da and Na would become Go, Do and No. This Mode has to be identified with the Third Mode of Primary First Scale, the same as that of Bilāskhāni Todi. The omitted notes are Rŏ

10. In S. R. II, 2, 94, Hindola is described as a Grāma Rāga from which Ri and Dha are left out. In Bh. N. S., 23, 124 these notes are stated to be weak in Shadja-Kaishikî Jāti of Shadja Grāma, from which Rāga Hindola is said to be derived (S. R. I, 7, 82). Modern Hindola is, however, devoid of Ri and Pa. As the modern Rāga must have been derived from the ancient Rāga, the Murchhanā of the latter is to start from Pa in order to make them coincide with each other, as shown above. The notes Go and No correspond to Ga and Na of the Shadja Grāma, on which ancient Hindola was based. It has been shown above that by changing the Mode-Initial Pa_1 to Sa the omitted notes become Ri and Pa instead of Dha and Ri. In S. R. the Murchhanā of Hindola is stated to be "Suddha-Madhyā", which belongs to Madhyama Grāma. This must be taken to be a misreading of "Suddhashadjā", which is a Murchhanā of Shadja Grāma starting with Pa.

and Pa. The notes of the Mode are as follows in Just Notation :

*Sa	[Rŏ]	*Go	Ma	(Pa)	*Do	No	Sa[1]	—Prim, I, 3.
	5	9	8	9	5	9	8	

The Mela-Signature of this Mode is No-Go-Do-Ro. The open Thirds below Go and Do, the Amsas of this Mode, are Minor (Laghu). Hindola can, as we have seen above, be also sung in two other Modes in which the Amsas have either Major (Āyata) Thirds or Double Thirds below them. In order to distinguish these three varieties of Hindola from each other, we have called them Laghu Hindola, Āyata Hindola and Sālanga Hindola. The last is propularly known as Vasanta (Prāchya), which will be dealt with along with other Chromatic (Sālanga) Rāgas. Similar varieties are also to be found in Rāga Sāranga.

Lakshanas :

(1). **Grāma**—Mukhya Prathama.
(2). **Murchhanā**—Tritîyā.
(3). **Amsas**—Sa, Go and Do.
(4). **Varjita Svaras**—Rŏ and Pa.
(5). **Nyāsa**—Go.
(6). **Apanyāsa**—Sa[1].
(7). **Vishishta Tānas :**
Nyāsa Tāna—Sa[1] No Do Ma Go.
Upānta Tāna—Go Ma Do No Sa[1].

Sa[1] is Vādî and Apanyāsa. Go is Apavādî and Nyāsa.

Laghu Hindola is a descending major hexachodal Rāga fit for the spring season.

Rāga Hindola as sung in southern India appears to have been Laghu Hindola [11]. But, we are told that this Rāga has

11. The tradition of Laghu Hindola in southern India comes from the medieval period. According to Rāmāmātya and Venkatoshwara Hindola is based on No-Go-Do-Mela, from which Ri and Dha are omitted. This description is practically the same as that found in S. R., because Dha being an omitted note may be taken to be natural and not flat. According to

now become indistinguishable from Hindusthanî Mālkaus. This must have been the consequence of confusion of Amsas. Though the Mela and the omitted notes of Laghu Hindola and those of Mālkaus in its customary form are the same, the Amsas of the former are Go and Do and those of the latter are Sa and Ma. The former is based on the Third Mode of Primary First Scale and the latter on the Fith Mode of Primary Fourth Scale.

Vasanta of medieval northern India was, as it appears from its description in Hridaya Prakāsha, analogous to Laghu Hindola. The Nyāsa Tāna of Laghu Hindola is based on Hexachordal Cadence-Norm No. 26(a)—Sa¹ Ma Go. This Rāga is suitable for morning like Prāchya Vasanta.

Illustration :

Rāga—Laghu Hindola.

Tāla—Tritāla.

Āsthāyî :

Ś¹:	No:	Do:	Do:	Do:	M:	Go:	-:	Go:	M:	Do:	No:
Ba- -	ra- -	na	ba- -	ra- -	na- -	ke·		phu- - -	le- -	phu	
Ṡ¹:	-:	-:	-:	Do:	Do:	M:	M:				
li·				sa- -	khi- -	yān	ma- -				
Ğo:	-:	S:	S:	Go:	M:	Do:	No:				
-na	bhā-	va-	na	lā- - - - -		ye·····					

Ahobala also this Rāga is based on No-Go-Do-Mela. But, the omitted notes are Ri and Pa and not Ri and Dha. This shows that the ancient Pa-Initial Murchhanā used in S. R. and continued by the aforesaid two southern theorists was converted to the Sa-Initial Murchhanā of the Mela period at the time of Ahobala. Ahobala's Hindola is the correct form of Laghu Hindola as shown above, as omitted Ri may be taken to be a flat note. The description of Hindola given in the modern work Rāga Lakshana is identical with that of Ahobala. There is, therefore, no doubt that Hindola of modern south Indian music is Laghu Hindola.

Antarā :

+ 0 /
Do: Do: Do: No: | -: S¹: S¹: S¹. | S¹: Go¹: Go¹: -: |
kā - - hu - - ke sî - - - - - sa mo - - ti - - ya - - na - - ke·····

Go¹: M¹: Go¹: -: | S¹: S¹: No: Do: M: M: Go: Go:
se - - - - - - rā····· du - - ji - - ke ga - - ra so - - ha - - ta

/ 0
Go: M: Do: Do: No: -: Do: -: |
mo - - - - - ha - na mā - - - - jā·····

The braketted portion at the beginning, which is composed of the Characteristic Phrases of the Rāga, may be repeated. Conclusion is to be made on Go the first note of the third bar, which is the Nyāsa note of the Rāga. The words of the composition given above are those of the first Hindola composition of K. P. M., IV, 176. But, all the notes except Sa have been lowered by one Semitone. This is tantamount to raising only Sa by one Semitone. The phrases have been materially altered and re-arranged in order to bring out the true character of the Rāga.

18. HINDOLA, ĀYATA.

[Prim, IV, 3.—Shuddha (1) Mela.]

Āyata Hindola is to be sung in the Shuddha Mela. It is based on the Third Mode of Primary Fourth Scale. It is distinguished from the other two varieties of Hindola by the open Major Thirds (Āyata Tritîya) below their Amsas. The notes to be used in this Rāga are given below in Just Notation :

Sa	[Ră]	*Ga	Ma	(Pa)	*Da	Na	Sa¹—Prim IV, 3
8	9	5	9		8	9	5

Lakshanas :

(1). **Grāma**—Mukhya Chaturtha.
(2). **Murchhanā**—Tritîyā.
(3). **Amsas**—Ga and Da.
(4). **Varjita Svaras**—Ră and Pa.
(5). **Nyāsa**—Sa¹.
(6). **Apanyāsa**—Ga.

(7). **Vishishta Tānas :**

Nyāsa Tāna—Ga Ma Da Na Sa[1].

Upānta Tāna—Sa[1] Na Da Ma Ga.

Āyata Hindola is, unlike Laghu Hindola, an ascending hexachordal Rāga fit for mid-night and the spring season. Its Nyāsa Tāna is based on Hexachordal Cadence-Norm No. 21(c)—Ga Na Sa[1].

There is no evidence to show that Āyata Hindola was ever sung as "Hindola". It appears, however, to be used in the name of "Shuddha Vasanta" in southern India. This Rāga is stated by Rāmāmātya and Venkateshwara to be based on a Mela, which is equivalent to Shuddha Mela of Northern India. Ahobala also gives the same Mela as the basis of his Rāga Vasanta. Venkateshwara speaks of an author, who was of the opinion that this Rāga was hexatonic in ascent leaving out Pa. According to the modern work Rāga Lakshana also Pa is omitted in ascent and used obliquely, as will be evident from the note-arrangement given in the book : Ga Ma Pa Ma Da Na Sa[1]. The Major Third between Ma and Dha is kept open in ascent. This shows that Shuddha Vasanta of southern India is analogous to Āyata Hindola. In Prāchya Vasanta of northern India Pa is totally omitted in the ascending Characteristic Phrase, which is, therefore, analogous to the corresponding phrase of Āyata Hindola.

Illustration :

Rāga — Āyata Hindola.

Tāla — Tritāla.

Āsthāyî :

{Ġ: M: D: D: | Ṅ: N: S[1]: S[1]: || (Ṡ[1]:) ||
Sa - ma - ja sa - - ma - ja gu - - na (gā)

Ḍ: N: D: D: | Ḍ: M: G: -: |}
gā - - - - ve gu - - ni - - - - - men···

Ġ: G: M: M: | Ġ: -: S: S: || Ġ: M: D: D:
ta - ba tu - ma - - ko····· gu - ni ja - - na sa - - ba

Ḍ: N: D: -: |
mā - - - - ne·

Antarā :

D: -: N: N: S¹: S¹: S¹: -: | S¹: G¹: S¹ S¹: |
jo ····· tu - ma gu - - na - - ki····· rî - - - - - ta hi

N: -: S¹: -: S¹: -: G¹: G¹: | M¹: M¹: G¹: -: ||
jā - - - - no····· sa - - - - pta su - - - ra - - na - - sen.....

S¹: S¹: S¹: S¹: | N: -: D: -: | D: N: D: D: |
gu - - na - - ko pa - - chhā - - no····· gu - ni gu - ni-

M: M: G: -: || G: M: G: -: | G: -: S: -: |
-ya - na - men··· sa - ba - hi····· jā - - - - ne·····

The bracketted portion may be repeated and conclusion is to be made with S¹, on which the concluding Sam is to be placed. The words are the same as those of the second Hindola composition of K. P. M., IV, 176. Only the note Mi has been lowered by one Semitone and made Ma, in order to make it a correct composition of Āyata Hindola. The phrases have been materially altered and re-arranged.

19. HĀMBÎRA.

[Prim. IV, 3 and III, 3—Shuddha (1) and Mi (7) Melas.]

Hāmbîra is a typical night Rāga combining sweetness with pathos. It is based on the Shuddha and Mi Melas, having Ga and Da for its Amsas. These represent the Third Modes of Primary Fourth and Third Scales. The Fourth Scale may be used both in ascent and in descent. The Third Scale can be used only in ascent. The notes of the two Scales used in this Rāga are shown below in Just Notation :

Sa Rā Ga Ma Pa Da Na Sa¹—Prim. IV, 3.
8 9 5 9 8 9 5

Sa Rā *Ga Mi Pa *Da Na Sa¹—Prim. III, 3.
8 9 8 6 8 9 5

The Third Modes of the Scales being used, they may be used in full forms. The false Third is between Na_1 and Ră. So, in ascent to Ră^1 the note Na has to be omitted. It need not be omitted if descent is made before reaching Ră^1.

The medieval authors Lochana and Hridaya Nārāyana used the Shuddha Mela in Hāmbîra. So, it appears that Mi was not used in it originally. In modern Hāmbîra, however, Mi can be used in its Upānta Tāna.

Lakshanas :

(1). **Grāma**—Mukhya Chaturtha and Tritîya.
(2). **Murchhanā**—Tritîyā.
(3). **Amsas**—Ga and Da.
(4). **Varjita Svara**—Na in ascent to Ră^1.
(5). **Nyāsa**—Da.
(6). **Apanyāsa**—Ga.
(7). **Vishishta Tānas :**
Nyāsa Tāna—Ga Ma Na Da.
Upānta Tāna—Da (Sa^1 Na Da) Mi Pa Mi Ga.

Puraka Tānas : (1). Ma Ră Sa.
(2). Da Sa^1 Ră^1 Sa^1.

The Nyāsa Tāna is based on Tetrachordal Cadence-Norm No. 11 (c)—Ga Na Da.

Ga is Vādî and Apanyāsa, and Da is Apa-vādî and Nyāsa.

Hāmbîra is an ascending tetrachordal Rāga sung in night.

CHAPTER XVI.

RĀGAS OF PRIMARY SCALES : MODES 4 To 7.

IV. FOURTH MODE.

(Amsas Ra and Pa.)

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20. KĀMODE.

[Prim. I, 4 and II, 4—Mi (7) and Shudha (1) Melas]

Kāmode is an elegant but difficult Rāga. It is based on Mi-Mela in ascent and has Ra and Pa as its Amsas. Its basis in ascent is, therefore, the Fourth Mode of Primary First Scale. Shuddha Ma of the Fourth Mode of Second Scale is used in descent and also in an alternative form of the Nyāsa Tāna of this Rāga.[1] The notes used in ascent are given below in Just Notation.

Sa *Ra (Ga) Mî *Pa [Dâ] Na Sa¹ – Prim. I, 4.
9 8 9 5 9 8 5

The notes of the Mode used in descent are :

Sa *Ra Ga Mâ *Pa (Dâ) Na Sa¹ – Prim. II, 4
9 8 6 8 9 8 5

The note Dâ, which is false Third to Sa¹ is to be omitted, both in ascent to and in descent from that note. It is, however, an important note, as it is used obliquely as leading note Pa, the Final. The note Ga is to be omitted, as it is false Fourth to this strong note. This Rāga is, in fact, pentatonic, though one of the omitted notes Dâ is very important as the Vakra Nāyaka Svara (oblique leading note) of the Nyāsa Tāna.

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1. In the few compositions of this Rāga found in the Bengal books, modulation is made to the Primary Third Scale from the Second Scale by the use of flat Na. Use of this note makes the Rāga almost indistinguishable from Rāga Desha. Moreover, the alternative form of the Nyāsa Tāna of this Rāga with Mi is rendered impossible by this modulation.

Lakshanas :

(1). **Grāmas**—Mukhya Dvitiya and Prathama.
(2). **Murchhanā**—Chaturthî.
(3). **Amsas**—Sa and Pa.
(4). **Varjita Svaras**—Ga and Da. The latter note is used obliquely in the Nyāsa Tāna.
(5). **Nyāsa**—Pa.
(6). **Apanyāsa**—Ra.
(7). **Vishishta Tānas :**

Nyāsa Tāna—Ra Dâ Pa Mî (Pa) Dâ Pa.
Upānta Tāna—Pa Ra Mâ Ra Sa Ra.
Puraka Tānas : (1). Rā Mî Pa.
(2). Pa Na Sa[1].

The Nyāsa Tāna ends in a turn with Mî, which is Minor Third below the Vakra Nāyaka Svara Dâ and Major Third above the Vadî Ra. It is based on Titrachordal Cadence-Norm. No. 11(*b*)—Ra Dâ Pa.

Kāmode is a night Rāga as its Nyāsa Tāna is ascending in character.

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21. SHYĀMA.

[Prim. I, 4 and II, 4—Mi (7) and Shuddha (1) Melas].

Shyāma, also sometimes called Shyāma Kalyāna, is based on Mi-Mela in ascent and Shuddha Mela in descent. The Amsas are Ra and Pa. The Mode in ascent is, therefore, the Fourth Mode of Primary First Scale and that in descent the Fourth Mode of Primary Second Scale. The notes used are given below in Just Notation.

In ascent.

Sa *Ra (Ga) Mî *Pa [Dâ] *Na Sa[1]—Prim. 1, 4
9 8 9 5 9 8 5

In descent

Sa *Ra (Ga) Mâ *Pa [Dâ] Na Sa[1].—Prim. II, 4
9 8 6 8 9 8 5

Shyāma is essentially a pentatonic Rāga in which Ga and Dâ are omitted, though these notes are used obliquely keeping the Major Thirds Ra-Mî and Pa-Na always open.

Lakshanas :

(1). **Grāma**—Mukhya Prathama in ascent and Mukhya Dvitîya in descent.

(2). **Murchhanā**—Chaturthî.

(3). **Amsas**—Ra and Pa.

(4). **Varjita Svaras**—Ga and Dâ. Ga is used obliquely in descent with Pa ; and Dâ is used obliquely in ascent with Mî.

(5). **Nyāsa**—Pa.

(6). **Apanyāsa**—Ra.

(7). **Vishishta Tānas :**

Nyāsa Tāna—Ra Mî Pa ; amplified -Ra Mî (Pa) Dâ Mî Pa.

Upānta Tāna—Pa Mâ (Ra) Sa Ra.

Puraka Tānas : (1). Pa Na Sa[1] ;
(2). Na Sa[1] Na Mî Pa.

The Nyāsa and Apa-vādi of Shyāma are Pa ; and its Apanyāsa and Vādî are Ra. In these respects this Rāga is similar to Kāmode. So, they are apt to be confused with each other. Their Characteristic Phrases are, however, different in structure. The Nyāsa Tāna of Shyāma is direct having Mî for its Nāyaka Svara ; while that of Kāmode is oblique having Dâ for its Nāyaka Svara. Shyāma must, therefore, always conclude with Mî Pa and Kāmode with Dâ Pa. Both are night Rāgas as their Nyāsa Tānas are ascending in character. The turn over of the Nyāsa Pa is not compulsory like that of Kāmode, and should better be not used in order to avoid confusion with that Rāga. The Nyāsa Tāna is based on Tetrachordal Cadence Norm No. 10(*b*)-Ra Mî Pa.

Illustration :

Rāga– Shyāma.
Tāla—Rupaka.

Āsthāyî :

*P: Mâ: | 0R: S: /R: -: -: || +R.S. R: |
Mhā - ra ra - si - - yā..... bā - - - - -

0Mî: Mî: | /Dâ: Mî: P: || +N: S¹.N. | 0P: -: |
- - - - lā - - ma..... } thā - - - - - - ne.....

/P: P.Mî. P: || +P: G: 0Mâ: -: | /R: R.S. R: ||
chā - - he ho rā - - - - - - - - - - - - - - - - - ja.

+R.S. R: | 0Mî: Mî: | /Dâ: Mî: P: || *P: Mâ
(bā - - - - - - - - - lā - - ma.....) Mhā - rā

Antarā :

+P: Mî: | 0N: -: | /S¹: -: N: || +S¹: R¹: | 0S¹: S¹:
dā - - - - - - - si..... than - - - ri ja - na - ma ja -

/N: N: P: || +Mî: Mî: | 0P: P: | /N: P.Mî. P: ||
na - ma - ki then - - to mā - kā si - - - - - - ra

+P: G: | 0Mâ: -: | /R: R.S. R: ||
tā - - - - - - - - - - - - - - - - - - ja

This composition is an adaptation of the song given in K.P.M., V, 21. The note arrangement of the song has been materially altered, in order to have the Apanyāsa Ra at the end of one section of a period in response to the Nyāsa Pa placed at the end of another section.

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22. CHHĀYĀNATA.

[Prim. II, 4.—Shuddha (1) Mela.]

Chhāyānata is a popular Rāga of a rather light character. It is based on Shuddha Mela and has Ra and Pa as its Amsas. It has some semblance with Rāga Desha. This semblance is, however, only apparent and is mainly due to

use of wrong Mode-octave in Desha, viz. Ra to Ra[1], and would disappear if it is sung in the proper Mode-octave Sa to Sa[1]. Chhāyānata is based on the Fourth Mode of Primary Second Scale, while Desha is based on the Fifth Mode of the same Scale and also the Fifth Mode of Primary Third Scale. The notes used in Chhāyānata are given below in Just Notation :

Sa	*Ra	Ga	Mâ	*Pa	[Dâ]	Na	Sa[1]	—Prim. II, 4.
9	8	6	8	9		8	5	

The note Dâ, which makes a false Third with Sa[1], is to be omitted in ascent. But, as the Upānta Svara of the Nyāsa Tāna it is an essential note of the Rāga and has to be used obliquely.

Lakshanas :

(1) **Grāma**—Mukya Dvitîya.
(2) **Murchhanā**—Chaturthî.
(3) **Amsas**—Ra and Pa.
(4) **Varjita Svara**—Dâ, which is used in ascent as Vakra Upānta (Nāyaka) Svara to the Nyāsa Pa.
(5) **Nyāsa**—Pa.
(6) **Apanyāsa**—Sa
(7) **Vishishta Tānas :**
Nyāsa Tāna—Ra Ga Mâ Dâ Pa.
Upānta Tāna—Pa Ga Mâ Ra Sa.

The Nyāsa Tāna is based on Tetrachordal Cadence-Norm No. 11(b)—Ra Dâ Pa.

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23 BHIMPALĀSHÎ, DVITÎYA.

[Prim. II,4—Shuddha (1) Mela.]

This Rāga, which is called Dhanāshrî by Ahobala and by all south Indian theorists has been treated as a variety of Bhimpalāshî and re-named "Dvitîya Bhimpalāshî" in this treatise ; first, because it has much resemblance with the well-known Rāga called "Bhimpalāshî" and often confused

with it, and secondly, because it has no resemblance with the well-known ancient Rāga of the same name, which is based on a Chromatic Scale. Both these varieties of Bhimpalāshî are based on No-Go Mela and the Mode-octaves used in both range from No_1 to No. But, their Scales and Modes are different, as their Amsas and omitted notes are different. Bhimpalāshî (Prathama) has Sa and Pa as its Amsas ; and the notes omitted in it are Ri and Dha ; while the Amsas of Dvitîya Bhimpalāshî are Sa and Ma and its omitted notes are Ri and Pa. The first variety of Bhimpalāshî is, therefore, based on the Seventh Mode of Primary Third Scale and the second on the Fourth Mode of Primary Second Scale. If the Mode-octave customarily used in these two varieties of the Rāga are made to start from Sa, the proper Mode-Initial of Melas, instead of No_1 their correct Mela-Signature would be "Shuddha". The Amsas of the former would be Ri and Dha, and the omitted notes Ga and Ni. The Amsas of the latter would be Ri and Pa, and the omitted notes Ga and Dha.[2] The notes to be used in Dvitîya Bhimpalāshî in its correct form are given below in Just Notation together with the notes of its customary form :

Correct Form :	Sa	*Ra	(Ga)	Mâ	*Pa	[Dâ]	Na	Sa[1]
		9	8	6	8	9	8	5
Customary Form :	Nŏ	*Sa	(Ră)	Go	*Ma	[Pa]	Da	Nŏ
		9	8	6	8	9	8	5

The note Dâ [Pa], which is false Third of Sa[1] [Nŏ] is to be omitted both in ascent and in decent. It can be used obliquely in ascent. Ga (Ră) is to be omitted only in ascent.

2. Only two writers on Hindusthānî music mention a Rāga Dhanāshri based on No-Go-Mela. One of them Vitthala, was a South Indian musical Pandit. The other Ahobala, believed by some people to be a South Indian, mentions some Rāgas undoubtedly of South Indian Origin, which he appears to have tried to introduce into Hindsthānî music. Dhanāshrî of No-Go Mela was evidently one of these imported Rāgas, as it is mentioned by all South Indian writers, but not by any

Lakshanas :

(1). **Grāma**—Mukhya Dvitîya.

(2). **Murchhanā**—Chaturthî.

(3). **Amsas**—Ra [Sa] and Pa [Ma].

(4). **Varjita Svaras**—Ga [Rā] in ascent and Dâ [Pa] both in ascent and in desent. Dâ [Pa] is used obliquely in ascent.

(5). **Nyāsa**—Pa [Ma].

(6). **Apanyāsa**—Ra [Sa].

(7). **Vishishta Tānas :**

Nyāsa Tāna—Ra Sa Ra Pa Mâ Pa Dâ Pa [Sa Nŏ$_1$ Sa Ma Go Ma Pa Ma].

Upānta Tāna—Pa Mâ Ga Ra [Ma Go Rā Sa].

The Nyāsa Tāna is based on Tetrachordal Cadence-Norm No. 11(b)-Ra Dâ Pa The Minor Third above the Vādî Ra is used obliquely.

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northern author other than the two mentioned above. Ahobala describes this Rāga as follows :—

"आरोहे रिधहीना स्यात् पूर्णा शुद्धस्वरैर्युता ।
गाँधार स्वर-पूर्वा स्याद् धनाश्रीर्मध्यमान्तिका ॥"

Shuddha Svaras of Ahobala are identical with the notes of No-Go Mela of modern music The passage contains the clear statement that Dhanāshrî concludes with Madhyama. In H.S.P. IV, 157 Bhatkhande gives the note arrangement of Rāga Dhanushrî as found in Ahobala's book Sangîta Pārijāta. The note Madhyama, as Bhatkhande rightly observes, is most prominent in this arrangement. It was evidently one of the Amsas of the Rāga and was used as the Nyāsa The note Sa is stated by Bhatkhande to be one of the Amsas of Dhanāshrî. The other Amsa of the Rāga, according to him, is Pa. This view is contradictory to Ahobala's statement mentioned above. The two Amsas of Dhanāshrî must, therefore, have been Sa and Ma and not Sa and Pa as alleged by Bhatkhande. The Scale of this Rāga is the same as that of Shārngadeva's Shrî Rāga. It is the ancient Shadja Grāma, which is equivalent to Primary Second Scale. The common name "Shrî" shows that Dhanāshrî was derived from Shri Rāga. In fact, Dāmodara describes Dhanāshrî as a Rāginî of

The Scale used in this Rāga is the same as that of Bāgeshrî. But, their Modes are different. There is chance of confusion between the two Rāgas if this Bhimpalāshî is sung in its customary form, in which the Amsas and omitted notes are identical with those of Bāgeshrî.

Some musicians use flat Ri and Dha in Bhimpalāshî. The Rāga in which such use is made is allied to the second variety in which Ma is an Amsa and not to the first variety in which Pa is an Amsa, because, flat Ri is augmented Fourth below Pa and so badly dissonant to it. Substitution of these two notes changes the Scale of the Rāga to Primary Fourth Scale. The correct form of this sub-variety of Second Bhimpalāshî and its customary form are given below :

Correct Form : Sa *Ra (Go) Mâ *Pa [Dâ] No Sa¹
9 5 9 8 9 5 8

Customary Form : Nŏ₁ Sa (Rŏ) Go *Ma [Pa] Do Nŏ
9 5 9 8 9 5 8
Prim. IV, 4

In common musical parlance this sub-variety may be called Komala (flat) Bhimpalāshî owing to the use of two additional flat notes in it.

Shrî Rāga. The omitted notes of a pentatonic Mode, which has Sa and Ma for its Amsas, must be either Ga and Ni or Ri and Pa. Omission of Ri from the ascending Characteristic Phrase, which is a common distinctive feature of Dhanāshrî and Bhimpalāshî, is indispensable in these Rāgas. The other omitted note of Dhanāshrî must, therefore, be Pa and not Dha, as stated by Ahobala. Damodara mentions only Ri as the omitted note of Dhanāshrî and not Dha. The note Dha cannot be omitted from Rāgas based on the aforesaid Scale, as it is the Madhya Svara of this Scale. The importance of Dha in these Rāgas will be evident from the fact that it is used as the Nyāsa note in Rāga Bāgeshrî, which is based on the same Scale. The note Ri is omitted in ascent and Pa in both ascent and descent in this Rāga.

In H S P. IV, 132 Bhatkhende states that some musicians use flat Ri and Dha in Bhimpalāshî. In explaining the source of this custom he states (P. 136) that Dhanāshri had, according

Illustration :

Rāga—Bhimpalāshî, Dvitîya.
Tāla—Ektāla.

Āsthāyî :

R G. S: -: R: | P: Mâ: P: P: P: Mâ: |
Kā - - - nhā -i - yā to - - - - re pa - ra - hun

Dâ: P: -: P: N: Dâ: Dâ: -: P: | Mâ: -: G: |
pai - yān..... ba - i - - yān mo - - - - ri chhā - - - nd

R: -: (R.G.) |
de - - - (Kā - -)

Antarā :

P: P: P: | N: N: N: | S^1: S^1: N: | N: R^1: R^1: |
su - na pā - ve mo - ri sā - - sa na - - na - di - - yā

G^1: R^1: -: | S^1: -: N: || P: Mâ: G: R: R: (R.G.) |
ka - - ri····· hā - - - - e so - ra cha - bai - yā (Kā-)

This is an adaptation of the song given in K.P.M. III, 562, which is a composition in Dvitîya Bhimpalāshî. The Antarā has been started from Pa (equivalent to customary Ma) and thoroughly recasted, omitting Dâ [Pa] both in ascent and in descent. In Āsthāyî Dâ has been used obliquely. The Antarās of all the compositions of Bhimpalāshî given in K.P.M., III are made to start from Pa which is an omitted note of the customary form of Dvitîya Bhimpalāshî. This note is the Nyāsa note of Bhimpalāshî (Prathama) and is to be used as the starting note of the Antarā of that Rāga. It appears that a mixture of both the varieties of Bhimpalāshî has been made in most of these compositions, the Āsthayî periods being mostly based on Dvitîya Bhimpalāshi and the Antarā periods on Prathama Bhimpalāshî, involving an unwarranted change of Scale.

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to some books, flat Ri and Dha and that these notes were used in Bhimpalāshî when Dhanāshrî came to be called by that name. Use of flat Ri in Dhanāshrî is a further proof that this Rāga had Ma as one of its Amsas and not Pa, which is badly dissonant to flat Ri.

SĀRANGA GROUP.

The Rāgas included in Sāranga Group are distinguishable from other Rāgas by the following common features :

(1). They are all pentatonic, omitting Ga and Da.

(2). Their Amsas are Ra and Pa.

(3). Their ascending Final Phrases are tetrachordal, starting with Ra and concluding with Pa.

(4). Their descending Penultimate Phrases, though extended tetrachordal in structure, are essentially hexachordal in character, as the starting note Pa must always be associated with the Third above it, either Major or Minor, which makes a Major or a Minor Sixth with Ra the concluding note of the Penultimate Phrase.

This last feature divides the group into two sub-groups of which one consists of Rāgas having a Major sixth or Na and the other of Rāgas having a Minor Sixth or No above the Amsa Ra. The former may be called Āyata Sārangas and the latter Laghu Sārangas. This Sixth is the Madhya Svara of the Scales in which the Rāgas are based, being a Major or a Minor Third above or below the Amsas Ra and Pa.

Renowned musicians from different parts of Northern India assembled in a musical convention held in Delhi in 1918 came to some conclusions regarding the characters of Rāgas belonging to the Sāranga Group, the number of which was traditionally believed to be seven. The names of these Rāgas recognized by the convention are ; Madhamād, Vrindāvanî. Shuddha, Badahamsa, Sāmanta, Miyānki and Lankādahan. Different views were expressed regarding the structure of the two most famous varieties called Madhamād and Vrindāvanî, All were unanimous in holding that Ga and Da were omitted in both. There was difference of opinion regarding the use of No or Na. The views of those who held that only No is to be used in Madhamād and only Na is to be used in Vrindāvanî appear to be most reasonable, as by such exclusive use of the two notes the Minor Hexachordal and Major Hexachordal

characters of the two Rāgas become clear and definite. The three Dhrupad songs in Vrindavānî Sāranga, including one composed by the great Tānasena, given in Pages 145-149 of Sangîta Manjarî contain only Na. This view is almost universally accepted by Bengal musicians. Use of No in Vrindāvanî obliterates the only real distinction between it and Madhamād. The use of Na that is sometimes made in ascent of Madhamād does not destroy its Minor Hexachordal character, as No, which is used in descent, is always included in its descending Characteristic Phrase, in which that note is associated with the Amsas Ra and Pa. These Amsas have each an open Third above them. In Madhamād the open Thirds above both the Amsas are Minor, while in Vrindāvanî the open Third above the Lower Tonic Pa is Major. The Major Third above the Lower Tonic and the Major Sixth above the Upper Tonic are the two features which distinguish Vrindāvanî from Madhamād in which both these intervals are Minor. There is another variety of Sāranga, which is rarely sung, in which the open Thirds above both the Amsas are Major. It is called Noor Saranga[3]. In structural beauty the two Sārangas Madhamād and Noor are superior to Vrindāvanî, as the two open Thirds in each of these are similar in character, but in the latter Rāga they are different. As a consequence of this similarity the fourth and the seventh notes of the aforesaid two Rāgas are consonant to each other, but they are not so in Vrindāvanî. In Madhamād and Noor these notes make a Perfect Fourth. These notes are Mâ and No in Madhamād and Mî and Na in Noor. The corresponding notes in Vrindāvanî Ma and Na make the ugly dissonant interval called Augmented Fourth. Madhamād and Noor may, therefore, be considered to be the two perfect types of Sāranga, from which the other varieties have been derived. A third perfect type is the combination of these two types. This is the ancient Sāranga of Lochana and most of the Southern theorists. It was a Chromatic Rāga,

3. This name is not included in the list of seven Sārangas recognized by the Delhi convention. Evidently this variety was not known to any of the musicians assembled.

which had both the Ma's and both the Ni's. Mention of this Rāga by almost all medieval writers shows that it was at that time one of the most popular Rāgas. But, its structure has been forgotten and it is no longer sung now. The modern Shuddha Sāranga has a superficial semblance with this Rāga. But, it is not used as a Chromatic Rāga. It is a hybrid Rāga, in which Mî is used with Da in a way, which gives it a semblance with Kāmoda. The name "Shuddha" wrongly applied to it shows that it is a misuse of the original Chromatic Rāga of ancient fame. The view generally expressed in the convention regarding the structure of the other varieties of Sāranga was that their distinction was created by the use of the omitted notes Ga and Da. As the Thirds above the Amsas Ra and Pa must always be kept open in order to preserve their Sāranga character, the omitted notes must be used obliquely. According to some musicians Badahamsa is characterized by the use of Ga and Sāmanta by that of Dâ. These Rāgas are rarely sung and very few compositions in them are found. Some of even these few compositions lack the Sāranga charater, as they do not follow the rules of structure mentioned above. For example, Dâ is so used in Sāmanta Sāranga as to fill up the open Third above Pa thus : No Dâ Pa obscuring the Sāranga character of the Rāga and mixing it with Rāga Desha. In order to preserve the Sāranga character Dâ must be used obliquely tacking it to Pa thus : Pa Mâ Dâ Pa. In Badahamsa the note Ga is to be used obliquely tacking it to Ma and in Lankādahana the note Go is to be used in the same way.

Miyāki Sāranga is not a distinct variety in the group, but identical with Badahamsa Sāranga, expressed in the unusual Ma_1—Ma Mode-octave. The number of Sārangas is, therefore, seven, as traditionally believed, excluding Miyāki Sāranga and including Noor Sāranga. Six of these, which are based on Primary Scales, are dealt with below. The ancient Shuddha Sāranga will be taken up with the other Rāgas based on Chromatic Scales.

24. MADHAMĀD SĀRANGA.

[Prim. IV, 4.—No-Go (3) Mela.]

The oldest and the most popular Rāga of the Sāranga group is called Madhamād or Madhyamādi or Madhumādhavî Sāranga. It is based on No-Go Mela. It is a pentatonic Rāga, from which the third and the sixth notes are omitted. The Amsas are Ra and Pa. The omitted third note may be either Ga or Go. So, the Mela may be either No Mela or No-Go Mela. The former would represent the Fourth Mode of Primary Third Scale and the latter the Fourth Mode of Primary Fourth Scale. The latter Scale is to be preferred. The Mode and the Scale of this Rāga is the same as those of Malkaus and Kānādā. The notes of the Rāga are given below in Just Notation :

Sa *Ra (Go) Mâ *Pa [Dâ] *No Sa¹ —Prim. IV, 4
9 5 9 8 9 5 8

It is a purely pentatonic Rāga like Malkaus, the notes Go and Dâ being always omitted.

Lakshanas :

(1). **Grāma**—Mukhya Chaturtha.
(2). **Murchhanā**—Chaturthî.
(3). **Amsas**—Ra, Pa and No.
(4). **Varjita Svaras**—Go and Dâ.
(5). **Nyāsa**—Pa.
(6). **Apanyāsa**—Ra.
(7). **Vishishta Tānas :**

Nyāsa Tāna—Ra Pa Mâ Pa.
Upānta Tāna—Pa *No* Pa Mâ Ra Sa Ra.

This Rāga may be considered to be the typical Laghu Sāranga, as the characteristic Tritîya (Third) and Shastha (Sixth) intervals in it are both Laghu (Minor). The Nyāsa Tāna of this Rāja is based on Tetrachordal Cadence-Norm No. 9(*b*) —Ra Mâ Pa. The Minor Third Mâ above the Vādî Ra is to be taken obliquely with the Nyāsa Pa in order to make the phrase conclusive.

NOOR SĀRANGA.

[Prim. I, 4.—Mi (7) Mela]

Noor Sāranga is one the three perfect varieties of Sāranga, which is characterized by open Major Thirds above the two Amsas and a descending Major Hexachordal Characteristic Phrase. It appears to be known to only a few musicians of Kathiawad in Western India[4]. But, on account of its structural beauty it should attract musicians of other parts of the country. It is sung in Mi Mela and has Ra and Pa as its Amsas. It is, therefore, based on the Fourth Mode of Primary First Scale, which is one of the two Perfect Scales. The Sāranga that is based on the other Perfect Scale, the Primary Fourth, is the Madhamād. The notes used in it are given below in Just Notation :

Sa	Ra	(Ga)	Mî	Pa	[Dâ]	Na	Sa[1]—	Prim. I, 4.
9	8	9	5	9	8	5		

The notes Ga and Dâ are ommitted making the Major Thirds Ra-Mî and Pa-Na open. These Major Thirds and the Major Sixth Ra-Na differentiate it form Madhamād, in which the corresponding intervals are Minor.

Lakshanas :

(1). **Grāma**—Mukhya Prathama.
(2). **Murchhanā**—Chaturthî
(3). **Amsas**—Ra, Pa and Na.
(4). **Varjita Svaras**—Ga and Dâ.
(5). **Nyāsa**—Pa.
(6). **Apanyāsa**—Ra.
(7). **Vishishta Tānas :**

Nyāsa Tāna—Ra Mî Pa.

Upānta Tāna—Pa Na Pa Mî Ra Sa Ra.

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4. Bhatkhande heard a song in this Rāga from a Mahomedan musician of Kathiawad. But, he does not appear to have recorded this song or published it in any of his books. (Vide H.S.P. IV, P. 383).

This Rāga may be considered to be the typical Āyata Sāranga, as its characteristic Tritiya and Shastha intervals are both Āyata. The Nyāsa Tāna is based on Tetrachordal Cadence-Norm No. 10 *b*)—Ra Mî Pa.

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26. VRINDĀVANÎ SĀRANGA.

[Prim. II, 4.—Shuddha (1) Mela.]

Vrindāvanî Sāranga is one of the well-known Rāgas of the Sāranga Group, which is sung in the Shuddha Mela. Like all Sārangas it has Ra and Pa as its Amsas. It is, therefore, based on the Fourth Mode of Primary Second Scale. The notes used in it are as follows in Just Notation :

Sa	*Ra	(Ga)	Mâ	*Pa	[Dâ]	Na	Sa[1]	—Prim. II, 4
9	8	6	8	9		8	5	

The omitted notes Ga and Dâ are put within brackets.

Lakshanas :

(1). **Grama**—Mukhya Dvitîya.
(2). **Murchhanā**—Chaturthî.
(3). **Amsas**—Ra and Pa.
(4). **Varjita Svaras**—Ga aad Dâ.
(5). **Nyāsa**—Pa.
(6). **Apanyāsa**—Ra.
(7). **Vishishta Tānas :**

Nyāsa Tāna—Ra Pa Mâ Pa.
Upānta Tāna—Pa Na Pa Mâ Ra Sa Ra.

The Nyāsa Tāna is based on Tetrachordal Cadence-Norm No. 9 *b*)—Ra Mâ Pa. The Minor Third Mâ above the Vādî Ra is to be taken obliquely as in Madhamād Sāranga.

BADAHAMSA SĀRANGA.

[Prim. III, 4—No (2) Mela.]

Badahamsa Sāranga is an uncommon Rāga seldom sung by modern musicians. It is, however, an ancient Rāga mentioned by Lochana and Hridaya Nārāyana. But, it is doubtful whether its original character has remained unchanged.[5] The modern Rāga, as it is sung in Bengal is allied to Madhmād Sāranga and is distinguished by the oblique use of Ga. The use of this note clearly differentiates it from the other varieties of the Rāga. It is based on the Fourth Mode of Primary Third Scale. The notes used in it are given below in Just Notation :

Sa	*Ra	(Ga)	Mâ	*Pa	[Dâ]	No	Sa¹—Prim.III,4.
9	8	6	8	9	5	8	

The notes Ga and Dâ are omitted. Ga is to be used in descent obliquely with Mâ.

Lakshanas :

(1). **Grāma**—Mukhya Tritîya.

(2). **Murchhanā**—Chaturthî.

(3). **Amsās**—Ra and Pa.

(4). **Varjita Svarās**—Ga and Dâ, of which Ga is used obliquely in descent.

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5. Two different descriptions of its structure are found in the two books of Hridaya Nārāyana. In Hridaya Kautuka the fourth and the seventh notes are Mi and No and in Hridaya Prakāsha they are Mi and Na respectively. The third and the sixth notes are omitted in both the books. According to the description of H. Prakāsha the Rāga is allied to Noor Sāranga. The modern Rāga has Ma and No and is, therefore, allied to Madhamād Sāranga. It appears from the different versions in the two books that there were different views regarding the structure of the Rāga even in the time of Hridaya Nārāyana. Different views were expressed regarding the structure of the modern Rāga in the Delhi convention of 1918. According to one view this Rāga is characterized by the use of Shuddha Ga. This view is most reasonable, as the use of Ga makes it clearly distinguishable from the other varieties. In Bengal the Rāga is sung in this form.

(5). **Nyāsa**—Pa.

(6). **Apanyāsa**—Ra.

(7). **Vishishta Tānas** :—

Nyāsa Tāna—Ra Pa Mâ Pa.

Upānta Tāna—Pa No Pa Mâ Ga Mâ Ra Sa Ra.

A song of sublime beauty was composed in this variety of Sāranga by poet Tagore. It is given below as illustration.

Illustration :

Rāga—Bada-hamsa Sāranga.

Tāla—Chautāla.

Āsthāyî : **Rabindra Nath Tagore.**

P.No. P: | P: P: | Mâ: Mâ: | R: R: | R: S: S: S: | S: S: |
Tān - -re ā - - - - - ra - - ti ka - re chan - -dra ta - pa - na,

S.N₁. S: | R: R: | R: P: | P.Mâ. G: | Mâ: R: | R.S. S: |
de - - - - - - va: mā - na-va - van - - - - - de cha - ra - - na ;

R: No.Dâ. | No: P: | Dâ: Mâ: | R: Mâ.R. | Mâ: Mâ: | P: P: |
ā - - - - - - sî - -na se - - i vi - - - - - - shva-sha - ra - na

R¹: -: | R¹: S¹: | R¹.S¹. S¹: | No: P: | P: -: | (No: P:) ||
tān - - - - ra ja - - -ga - - - ta man - - - di - re. (Tān -re)

Antarās :

P: N: | N: N: | N: N: | S¹: -: | S¹: S¹: | S¹: S¹: || P.Mâ.P: ||
1. A-nā - di kā - la a - - nan - - ta ga - -ga - na se - - - i
2. Hā-te la- -ye chha-y ri - tu -ra dā - - - - li, pā - - -ye

N: S¹: | S¹.N. S¹: | R¹: R¹: | S¹: No.Dâ. | No: P: || P: No: | No: P:
a - sî - ma ma - hi - mā ma -ga - - - - - - na ; tā- he ta- ra-
da-e dha - rā ku-su - - ma dhā - - - - - li ; ka-ta - i va-

Mâ: R: | R: Mâ: P: N: | S¹: S¹: || R¹: -: | Mâ¹: R¹: | R¹: S¹: |
- - nga u - - - the sa - gha-na ā - - - - na - - nda na - nda
ra - na ka - ta - i ga - - - ndha ka - - ta gî - - - ta ka - - ta

No: - : | P: P: | (No: P:) ||
na - - nda re. (Tān - re)
chha - - nda re. (Tān - re)

Sanchārî :

*P: Mâ: | 0Mâ: Mâ: | /P: P: | /P: P: 0P: P.Mâ. | /P: P:
vi - - ha - ga gî - - - - - ta ga - ga - na chhā - - - - ya,

+Mâ: P: | 0Dâ.P. P: | /Ṡ: Ṡ: /Ṅo Ṅo: | 0Ṗ: Mâ: | /Mâ: R: |
ja - - la - - da gā - - - - ya ja - - la dhi gā - - - - - ya ;

+Ṙ: Mâ: | 0 —: R: | /Ṙ: Ṙ: /Ṙ: Ṡ: 0Ṡ: Ṡ: | /Ṡ: Ṡ: ||
ma - hā - - - - - pa - va - na ha - ra - she dhā - - - ya,

*Ṙ: Mâ R. | 0Mâ: —: | /Mâ: Mâ: | /P: Mâ: | 0Dâ: P: | -: -: ||
gā - - - - - - he..... gi - - - ri - - ka - - - - - nda - re.....

Ābhoga :

+P: N: | 0Ṅ: N: /Ṅ: N.Ṡ¹ | /Ṡ¹: Ṡ¹: 0Ṡ¹: Ṡ¹.N. | /Ṡ¹: Ṡ¹: || +P.Mâ. P: |
ka-ta ka-ta sha - ta bha-ka - ta prā - - - - na, he - - ri-

0Ṅ: Ṡ¹: /Ṡ¹.N. Ṡ¹: /Ṙ¹: Ṙ¹: 0Ṡ¹: Ṅo.Dâ. | /Ṅo: P: | +P: Ṅo: | 0Ṅo: P: |
-chhe pu - la - - ke gā - hi - chhe gā - - - - - na ; pu - - nya ki-

/Mâ: R: | /Ṙ: Mâ: | 0P: N: /Ṡ¹: Ṡ¹: | +Ṙ¹: Ṙ¹: 0Mâ¹: Ṙ¹: | /—: Ṡ¹: |
-ra - ne phu - ti - chhe pre - - ma, tu - - ti - - chhe mo - - - ha

/Ṅo: Dâ Ṅo. | 0P: P: | (/Ṅo: P:) |
ba - - - - - - ndha re. (Tān - re)

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28. LANKĀDAHANA SĀRANGA.

[Prim. IV. 4.—No-Go (3) Mela].

Lankādahana Sāranga is an almost forgotten Rāga. The song found in Kramika Pustaka Malika, Vol. VI, page 148 is the only recorded composition in this Rāga. Bhatkhande got this song from his guru Wazir Khan of Rampur. The distinctive character of this Rāga can be ascertained from this single composition. There is no reason why other songs should not be composed in this Rāga by competent composers. It is based on No-Go Mela. Like other varieties of Sāranga it has Ra and Pa as its Amsas and the third (Go) and the sixth (Dâ) notes

are omitted. It is, therefore, based on the Fourth Mode of Primary Fourth Scale. The notes used in it are, as follows, in Just Notation :

Sa *Ra (Go) Mâ *Pa [Dâ] *No Sa[1] —Prim. IV, 4.
9 5 9 8 9 5 8

This Rāga is, therefore, derived from Madhamād Sāranga, which is also based on the same Mode. Its distinctive feature is the oblique use of the omitted third note Go

Lakshanas :

(1). **Grāma**—Mukhya Chaturtha.
(2). **Murchhanā**—Chaturthî.
(3). **Amsas**—Ra, No and Pa.
(4). **Varjita Svaras**—Go and Dâ, Go being used obliquely in desent.
(5). **Nyāsa**—Pa.
(6). **Apānyāsa**—Ra.
(7). **Vishishta Tanas :**

Nyāsa Tāna—Ra Pa Mâ Pa.
Upānta Tāna—Pa No Pa (Mâ) Go Mâ Ra Sa Ra.

This Rāga is based on the same Mode as that of Darbārî Kānadā. The note Go is used obliqueley in the latter Rāga also in the same way as it is done in the present Rāga. This note, which is made prominent by what is called Andolana (oscillation) in that Rāga, should not be repeated in that manner in the present Rāga in order to avoid hybridity. The relation of that note as perfect Fifth below No, the uppermost note of the descending hexachordal Characteristic Phrase, must, however, be clearly shown in order to bring out the distinctive feature of the Rāga. The note Dâ, which is a strong and essential note in Kānadā, should be avoided in the present Rāga. It may be lightly touched always keeping the Minor Third Pa-No open.

29. SĀMANTA SĀRANGA.

[Prim. IV, 4—No-Go (3) Mela.]

Sāmanta Sāranga is one of the rarely sung varieties of the Sāranga group. It is derived from Madhamād Sāranga and is characterized by the oblique use of the omitted note Dâ. This note should be so used as not to destroy the Sāranga character of the Rāga[6]. In other words, it must be tacked

6. In the single song found in K. P. M. VI, 139, which is composed by Bhatkhanda himself, Dâ is so used as to obscure the Sāranga character of the Rāga. In H. S. P. IV, 414 he clearly states, that the omission of G and D is an essential feature of the Sāranga group. This statement can only mean that the intervals created by their omission must always be kept open, even though they may be used. This can be done only by using them obliquely. But, in the aforementioned song the omitted note Dâ is used in the combination No Dâ Pa, which obliterates the open Minor Third No-Pa, which is essential for Sārangas. Further, he clearly admits that this combination is characteristic of Rāga Desha. Introduction of this combination evidently destroys the purity of the Rāga. This hybridity can be prevented by using Dâ obliquely, tacking it to Pa in an *āvarta alankāra* (turn); thus : Pa Dâ Mâ Pa. This combination may be used both in ascent and in descent either with the Upānta or with the Nyāsa Tāna, preferably with the former.

The note Dâ is found to be used in a different way in four songs of what is called Miyāki Sāranga given in K. P. M., VI, 142-146. It is used obliquely and tacked to No_1 of the lower octave. These songs are composed in the Mode-octave, which has Ma_1 as the Initial Note. This change of octave alters the Murchhanā used in the Rāga and consequently also the character of the Rāga. It cannot be believed that Tānasena, who is said to be the creator of this Rāga intended this change of character. We must, therefore, conclude that the change was only apparent and the mutual relationship of notes of a true Sāranga Rāga were not altered. Such relationships will be found in the notes given below in Just Notation :

Ma_1	*Pa_1	(Da_1)	No_1	*Sa	[Ra]	Go	Ma
9	8	6	8	9	5	8	

This octave is equivalent to Sa-Initial octave :

Sa	*Ra	(Ga)	Mâ	*Pa	Dâ	No	Sa^1
9	8	6	8	9	5	8	

obliquely to Pa, keeping the minor Third Pa-No always open. Like Madhamād Sāranga it may be considered to be based either on No Mela or No-Go Mela, because the third note is totally omitted in it. The Amsas are Ra and Pa, as in all other Sārangas. It may, therefore, be taken to be based on the Fourth Mode of either Primary Third Scale or Primary Fourth Scale. The notes of the Fourth Mode of Primary Fourh Scale are as follows in Just Notation :

Sa *Ra (Go) Mâ *Pa [Dâ] *No Sa¹ —Prim. IV, 4.
9 5 9 8 9 5 8

The distinctive feature of this variety of Sāranga is that the omitted note Dâ is used in it obliquely and tacked to Pa. It is Major Third above Mâ and is used with it in an Āvarta Alankāra of Pa ; thus Pa Mâ (Pa) Dâ Mâ Pa.

This is the Fourth Mode of Primary Third Scale, used in Badahamsa Sāranga. The omitted notes of Miyāki Sāranga are, therefore, not Da_1 and Go, but Da_1 and Ra. The four compositions referred to above have lost most of their Sāranga character by omitting Go and using Ra in its stead. It should be pointed out that Da_1 and Ra of these compositions stand for Ga and Dâ respectively of the usual Mode-octave. The oblique use of Da_1 as No_1 Da_1 No_1 made in Miyāki Sāranga is, therefore, equivalent to the oblique use of Ga as Mâ Ga Mâ made in Badahamsa Sāranga. We get correct compositions of Badahamsā Sāranga, if we substitute Go for Ra in the aforesaid four compositions.

Such transposition of the usual Mode-octave Sa-Sa¹ to Ma_1-Ma is also to be found in a famous Rāga attributed to Tānsena, viz, Miyāki or Dabāri Kānadā. This transposition was necessitated by the unusually long range of two octaves used by the great master in his compositions. This range was made to coincide with the usual compass of two octaves from Ma_1 to Ma found in the Veena used as accompaniment to vocal music.

Miyāki Sāranga must, under these circumstances, be considered to be identical with Badahamsa Sāranga put in a Mode-octave different from the usual Mode-octave and not as a distinct separate Rāga.

Lakshanas :

(1). **Grāma**—Mukhya Chaturtha.
(2). **Murchhanā**—Chaturthî.
(3). **Amsas**—Ra, Pa and No.
(4). **Varjita Svaras**—Go and Dâ.
(5). **Nyāsa**—Pa.
(6). **Apanyāsa**—Ra.
(7). **Vishishta Tānas :**

Nyāsa Tāna—Ra Pa Mâ Pa Dâ Mâ Pa.
Upānta Tāna—Pa No (Pa) Mâ (Pa) Dâ Pa Mâ Ra Sa Ra

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30. DARBĀRI KĀNĀDĀ.

[Prim. IV, 4—No.-Go (3) Mela.]

Rāga Kānadā also called Darbari Kānādā which is one of the greatest and best known of Rāgas, is of a solemn and sublime character. The word "Dārbāri" means 'suited for a royal court'. It is believed that the Rāga acquired this appellation when it was sung in a particular form by the great Tānasena in the court of emperor Akbar. This form of Kānadā is sought to be distinguished from its other forms by including it in the No-Go-Do Mela and the other forms in the No-Go Mela. This distinction is, however, unreal. For, we find that Darbāri is sung in the octave Ma_1-Ma. If this octave of No-Go-Do Mela is transposed to the proper Sa-Initial octave, it becomes No-Go Mela, which is the proper Mela for all Kānadās. What, then, is the reason for using this special Mode-loctave for the Darbāri ? In answering this question we have to look to the structure of the Veena. This instrument has a compass of two octaves starting with Ma_1. The fact that this note is also the Initial of the Mode-octave in which Darbāri is sung shows that this Rāga was intended to be sung in two octaves, which is ordinarily the longest compass of human voice possessed only by a few fortunate singers. The gravest notes of the human voice with those of accompanying Veena

imparted a particular solemn character to the Rāga. This fact appears to have led Tānasena to put the Rāga in the aforesaid form, which must have been considered by him to be best suited for the imperial court. It would appear from what has been stated above that the Mela on which this Rāga is based is No-Go and not No-Go-Do. There is, therefore, no difference between Darbāri and other Kānādās, so far as their Mela is concerned. There is no reason why Darbāri should not be written in notes of No-Go Mela like other Kānādās. In fact, it was, as we shall see presently, written in that Mela originally[7].

The Scale and the Mode of the Mela of Darbāri have to be ascertained from its Vādî and Samvādî, i e. to say, the Amsas. The notes Ra and Pa are almost universally acknowledged to be the Amsas. With these notes as Tonics the No-Go Mela has to be identified with the Fourth Mode of Primary Fourth Scale. If, according to the usual practice, this Mela is transposed to No-Go-Do Mela with Ma as the Mode-Initial, the Amsas become Sa and Pa. Ra cannot be an Amsa of No-Go-Do Mela as Do, the fifth note above it, is diminished Fifth, which is a bad dissonance. The universal acceptance of Ra as one of the Amsas points to the fact that No Go was the original Mela of Darbāri. The especial feature of Kānadā is said to be oscillation of Gāndhāra (Gāndhārāndolana). This oscillation is made with the note Ma. It is done in the following way : Pa Go Mâ Go Mâ Ra. This oscillation is not possible if the Rāga is

7. Shrikrishna Ratanjankar, principal, Marris College of Music, Lucknow, in his learned paper on "Kānadā Varieties", read in the fourth session of All India Music Conference held in Lucknow in the year 1925, traced from Sanskrit works on musical theory the history of the development of Rāga Kānadā. He showed that from all available evidence this Rāga was proved to be based on No-Go Mela He, therefore, quite naturally, found himself in a quandary as to how and when flat Dha came to be introduced into the Rāga. But, in fact, that note was never actually introduced into that Rāga. It was, as we have seen above, only a case of unusual change of the Mode-octave and not of the Mela. (Vide Report of the 4th All India Music Conference, 1925 Vol. II)

sung in No-Go-Do Mela. The progression has to take the form Go Ra Sa without touching Ma, which is a false Third to Ra. The oscillation of Gāndhāra, therefore, also points to No-Go Mela. In the transposed No-Go-Do Mode-octave this oscillation has to be made on Do_1 which takes the form : Sa Do_1 No_1 Do_1 No_1 Pa_1. This dual method of expressing Kānadā has given rise to a lot of confusion.[8] As a result we find oscillation of both Do and Go in many compositions of the Rāga. This practice, which creates a sort of parallelism, is unscientific, as two different Mode-forms incompatible with each other are used in the same Rāga, creating false relationships of notes.

The Scale and the Mode of Rāga Sāranga are the same as those of Kānadā. But, while the former is a pentatonic Rāga, totally omitting Go and Dâ, the latter is hexatonic omitting only Dâ. This note, however, is used obliquely in ascent and is very important, as it performs the function of an oblique leading note to the Nyāsa Pa in the final Characteristic Phrase Ra Dâ Pa.

The corresponding note in the No-Go-Do form of the Rāga is Ra. The Final Phrase appears in it as Pa_1 Ra Sa, corresponding to Ra Dâ Pa in the other form. The upward progression may go upto No [Go], as found in some varieties of Kānadā ; but, if we want to proceed further up we must come back to Pa [Sa], and omit Dâ [Ra] in order to touch Sa^1 [Ma] as the false Third is Dâ-Sa^1 (Ra-Ma). Thus, Pa No Sa^1 [Sa Go Ma]. In descent Dâ [Ra] must always be omitted.

8. Even Bhatkhande has not been able to free himself from this confusion. Though in his Lakshya-Sangîtam he clearly states that the whole pecularity of the Rāga exists in the lower octave ("स्यादूवैचित्र्यमत्ररुपे ह्यखिलं मन्द्रसप्तके"), and thus points to the Ma_1-Ma Mode-octave of No-Go-Do Mela, he mentions Ra as one of the Amsas and speaks of oscillation of Gāndhāra, which are only possible in No-Go Mela (vide L S. 95). In H. S. P. IV, 814 he speaks of oscillation of both Do and Go in the Darbāri. Ratanjankar, as will be seen from the article referred to above, is also involved in the same confusion, as he states that Gāndhārāndolana is the common feature of all Kānadās including the Darbāri.

Go [Do_1], which is omitted in Sāranga, is a most important note in Kānādā. The practice of oscillating it with Mâ [No_1] is in reality meant to bring it to prominence. But, a note made howsoever prominent, cannot have any significance by itself. It is in relation to one of the Tonics that it acquires that significance. Go [Do_1] is related to the Tonic Pa [Sa] as Major Third below it. It will be observed that the oscillation of Go [Do_1] is invariably made in descent from Pa [Sa]. This shows that the peculiar effect of Go [Da_1] in Kānādā is that of the descent of a Major Third from Pa [Sa][9]. That effect is best produced if the descent is made slowly from Pa [Sa] to Go [Do_1] through a *meed*. The much-talked-of oscillation is less effective and is not at all essential. Another interval that lends colour to the descending Characteristic Phrase of Kānādā is the descending Minor Third Mâ—Ra [No_1-Pa_1]. These two Thirds taken leisurely one after another produce all the sombre effect of Kānādā, and should be kept open in order to produce the best effect. There are good compositions of Kānādā, in which there is no oscillation of Go[10]. It should be omitted in ascent in Kānādā in order to distinguish its ascending Characteristic Phrase from that of Rāga Kāfi, which belongs to the same Scale and Mode.

The notes used in Darbāri Kānādā are given below in Just Notation, both in correct and customary forms :

Correct form : Sa *Ra Go Mâ *Pa Dâ *No Sa[1]
9 5 9 8 9 5 8

Customary form : Ma_1 *Pa_1 Do_1 No_1 *Sa Ra *Go Ma
9 5 9 8 9 5 8

—Prim. IV, 4.

9. In H. S. P. Vol. IV, P. 815 Bhatkhande states that great effect is produced in this Rāga by falling from Ra to Do_1, as in the combination Ra Do_1 No_1 Pa_1. The effect is not due to progression from Ra, which is badly dissonant to Do, but to that from Sa, which should be taken immediately before Do. Thus : Sa Do_1 No_1 Pa_1.

10. Poet Tagore never, so far as we know, used "Oscillation" of Go in his compositions of Kānādā.

The correct form given above shows that the Mela of the Rāga, which is No-Go, is to be identified with the Fourth Mode of the Primary Fourth Scale. Rāgas Kāfi and Sāranga are also based on this Mode. The false Third in it is Dâ-Sa[1] [Ra-Ma].

Lakshanas :

(1). **Grāma**—Mukhya Chaturtha

(2). **Murchhanā**—Chaturthî.

(3). **Amsas**—Ra, Pa and No [Pa_1, Sa and Go].

(4). **Varjita Svara**—Dâ [Ra], which is used in ascent only in Vakra form.

(5). **Nyāsa**—Ra [Pa_1].

(6). **Apanyāsa**—Pa [Sa].

(7). **Vishistha Tānas :**

Nyāsa Tāna—Pa Go Mâ Ra Sa Ra [Sa Do_1 No_1 Pa_1 Ma_1 Pa_1].

Upānta Tāna—Ra Mâ Pa Dâ Pa [Pa_1 No_1 Sa Ra Sa].

The Nyāsa Tāna is based on Tetrachordal Cadence-Norm No. 14(d)—Pa Sa Ra. This Rāga is customorily sung in night. But, as the ascending Characteristic Phrase, having a Minor Third (Mâ) above its starting note (Ra), is inconclusive ; and as the descending Characteristic Phrase, having a Major Third (Go) below its starting note (Pa) made prominent by oscillation, is conclusive and must, therefore, be treated as the Final Phrase, the Rāga is to be considered suitable for morning and not for night.

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31. SUGHRĀI KĀNĀDĀ.

[Prim. IV, 4—No-Go (3) Mela.]

Sughrāi is a beautiful variety of Kānādā, which is based on the same Mode of the same Scale as that of Darbāri Kānādā. The distinctive feature of this variety is that the Minor Sixth above the Apa-Vādî or the starting note of the Penultinate Characteristic Phrase is added to that phrase. This note is used just after the Apa-vādî and before the Nāyaka Swara or leading note of the phrase. This addition gives a peculiar

flavour to the Rāga. There is no alteration in the Cadence Phrase. The notes used in this Rāga are given below in Just Notation :

Sa *Ra Go Mâ *Pa [Dâ] *No Sa¹ —Prim. IV, 4.
9 5 9 8 9 5 8

The Rāga is based on No-Go Mela, like Darbāri Kānadā. The Amsas are Ra, Pa and No, which are marked by asterisks overhead. The note Dâ, which is a false Third below Sa¹, is omitted both in ascent to the latter note and in descent from it. If is, however, an essential note of the Rāga, being the oblique leading note to the Semi-final Pa. The note No is associated with it in this Rāga.

Lakshanas :

(1). **Grāma**—Mukhya Chaturtha.
(2). **Murchhanā**—Chaturthî.
(3). **Amsas**—Ra, Pa and No,
(4). **Varjita Svara**—Dâ, which is used obliquely in ascent as the leading note to the Apanyāsa.
(5). **Nyāsa**—Ra.
(6). **Apanyāsa**—Pa.
(7). **Vishishta Tānas :**

Nyāsa Tāna—Pa Go Mâ Ra Sa Ra.
Upanta Tāna—Ra No Dâ Pa Mâ Dâ Pa.

Puraka Tānas : (1) Pa No Sa¹.
(2) No Pa Mâ.

Sādhaka Tānas : (1) Pa No Sa¹ Ra¹.
(2) No Sa¹ Ra¹ Mâ¹ Go¹.
(3) Ra¹ Sa¹ No Pa Mâ Pa.
(4) Ra Sa No_1 Pa_1.

The Nyāsa and the Upānta Tānas are both tetrachordal like those of Darbāri. The Nyāsa Tāna, which is descending in character, is extended downwards by adding one note Sa obliquely in both Darbāri and Sughrai. It is thus, given the semblance of a pentachordal phrase. The Upānta Tāna, which is ascending in character, is extended upwards by the oblique leading note Dâ in both the Rāgas. The special feature of

Sughrai is that the Upānta Tāna is further extended upwards by adding the note No, thus giving it the semblance of a hexachordal phrase. This note is to be taken by a leap from the Apa-vādî Sa giving prominance to the interval of Minor Sixth between Ra and No.

Illustration :

Rāga—Sughrāi Kānādā.

Tāla—Tritāla.

Āsthāyî : **Achapala.**

*R:	-:	No:	-:	No:	-:	Dâ:	-:
Ba - l - mā.....				re.....		chu - - -	
R:	S:	R:	-:	P:	Go:	-:	-:
ma - e - - kā.....				lā - - - - - - - - - - -			
Go:	Mâ:	Go:	Mâ:	R:	S:	R:	-:
-gā - - - - - - - -				ye		de	
R:	-:	S:	-:	No1:	S:	No1:	S:
ro.....				ja - - - -		ra - - - - -	
P1:	-:	No:	-:	P:	-:	Mâ:	-:
shyā - - -				ma - - - -		ko.....	
R:	-:	-:	-:				
de.....							

P:	Mâ:	P:	-:	No:	-:	No:	-:
shyā - - - - - - - - -				ma.....		su - - -	
S1:	-:	S1:	-:	S1:	No:	S1:	-:
son.....				khe - - - - - - - - - -			
Mâ1:	Go1:	-:	-:	R1:	-:	-:	-:
ho - - - - - - - - - - -				ri.....			
R1	-:	S1	-:	No:	S1:	No:	S1:
ra.....				gu - - - -		lā - - - - - - - - - - -	
Mâ	-:	P:	-:	Dâ:	-:	P:	-:
cho - - - -				li - - -		yā.....	
R:	S:	R:	-:				
de.....							

S1:	-:	S1	-:				
nda - - -				ra - - - -			
R1:	-:	R1:	-:				
lo - - - -				ngi.....			
No:	-:	S1:	-:				
a - - - - -				bi - - -			
S1:	-:	P:	-:				
la - - - -				se.....			
Go:	Mâ:	Go:	Mâ:				
ran - - -				gā - - - - - - - - -			

Antarā :

P:	Mâ:	P:	-:	No:	-:	No:	-:
shyā - - - - - - - - -				ma.....		su - - -	
S1:	-:	S1:	-:	S1:	No:	S1:	-:
son.....				khe - - - - - - - - - -			
Mâ1:	Go1:	-:	-:	R1:	-:	-:	-:
ho - - - - - - - - - - -				ri.....			
R1	-:	S1	-:	No:	S1:	No:	S1:
ra.....				gu - - - -		lā - - - - - - - - - - -	
Mâ	-:	P:	-:	Dâ:	-:	P:	-:
cho - - - -				li - - -		yā.....	
R:	S:	R:	-:				
de.....							

S1:	-:	S1	-:				
nda - - -				ra - - - -			
R1:	-:	R1:	-:				
lo - - - -				ngi.....			
No:	-:	S1:	-:				
a - - - - -				bi - - -			
S1:	-:	P:	-:				
la - - - -				se.....			
Go:	Mâ:	Go:	Mâ:				
ran - - -				gā - - - - - - - - -			

This composition is a typical specimen from which the character of the Rāga can be clearly ascertained. This beatiful song is found in three different versions in K. P. M., VI. 172, Sangîta Bāla Bodha (by Vishnu Digambar Pulaskar), Part II, page 30, and Tāna Mālā by Gopeswar Banerjee (page 40). The version of the last-named work is superior to those of the other two works, both in the structure of the composition and in the wording of the song, which is more chaste and sensible. The name of the composer Achapala is given in this work only. We have, therefore, adopted this version with slight modifications. The manner of introducing the Nāyaka Svara Dâ into the Upānta Tāna is specially noticeable. The name of the Rāga is stated to be Sughrāi in the first work, Subā Sughrāi in the second and Nāyaki in the last. We have accepted the name Sughrāi found in two of the works. The Tāla arrangement adopted is mainly that given in K. P. M. We have started with Sam and placed the sign of the final *Sam* on the syllable "Ba" at the beginning of the first bar. The second of the two sections of the Āsthāyī period beginning with "tehāro" descends to the lower octave and is, therefore, of the character of the Sanchārî period of Dhrupads. This section, which is absent in the first two works, adds a special beauty to the composition. The braketted first section, which shows the character of the Rāga, may be repeated.

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32. KĀFI.

[Prim. IV, 4.—No-Go (3) Mela.]

Kāfi is an elegant Rāga, used in the lighter styles. It is based on No-Go Mela and has Ra and Pa for its Amsas. Its Mela is, thefore: equivalent to the Fourth Mode of Primary Fourth Scale, the same as that of Darbāri Kānadā. The notes used in it are as follows in Just Notation :

Sa	*Ra	Go	Mâ	*Pa	Dâ	No	Sa[1]	—Prim. IV. 4.
9	5	9	8	9	5	8		

The notes constituting a false Third are marked by a brace overhead. The lower one of these notes is omitted in ascent and the higher one is descent.

Lakshanas :

(1). **Grāma**—Mukhya Chaturtha.
(2). **Murchhanā**—Chaturthî.
(3). **Amsas**—Ra and Pa
(4). **Vajita Svaras**——Dâ in ascent and Sa^1 in descent.
(5). **Nyāsa**—Ra.
(6). **Apanyasa**—Pa.
(7). **Vishishta Tānas :**

Nyāsa Tāna—Pa Dâ Pa Mâ Go Ra.
Upanta Tāna—Ra Sa Ra (Mâ) Go Mâ (Dâ) Pa.

Puraka Tānas : (1) Ra Dâ No Dâ.
(2) Mâ Dâ No Dâ.
(3) No Dâ Pa Mâ Go Ra.

Sādhaka Tānas : (1) Pa No Sa^1.
(2) Ra^1 No Dâ Pa.

The Nyāsa Tāna is based on Tetrachordal Cadence-Norm No. 13(d)—Pa Go Ra. This Rāga is suitable for morning like Kānadā.

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33. MĀLKAUSH.

[Prim. IV, 4.—No-Go (3) Mela.]

Mālkaush is a great Rāga of sublime beauty. It. is a pentatonic Rāga customarily placed in No-Go-Do Mela, from which the second and the fifth notes are omitted. As Sa and Ma are treated by all as Amsas, the Scale of the Rāga may be either Primary Third or Fourth, the omitted second note being taken to be either Rä or Rö. We prefer the better of the two, the Primary Fourth Scale. The Mode-octave used in most compositions ranges from Do_1 to Sa^1. The character of the Rāga is not affected if the two extremes notes Do_1 and

Sa^1 are excluded. This gives the octave No_1-No. It is exactly the octave used by Tānasena in a composition found in Sangîta Manjarî (p. 492), which we have given below by way of illustration. This octave represents the Fourth Mode of Primary Fourth Scale. The notes of the correct form of the Mode with Sa as the Initial note are given below in Just Notation together with the notes of the customary form :

Correct Form :	Sa	*Ra	(Go)	Mâ	*Pa	[Dâ]	*No	Sa^1		Prim. IV, 4
	9	5	9	8	9	5	8			
Customary Form :	No_1	*Sa	(Ro)	Go	*Ma	[Pa]	*Do	No		

The Amsas of the correct form are Ra and Pa ; and the omitted notes are Go and Dâ, which is false Third below Sa^1. The Mode used in Mālkaus is the same as that used in Madhamād Sārnnga.

Lakshanas :

(1). **Grāma**—Mukyha Chaturtha.
(2). **Murchhanā**—Chaturthî.
(3). **Amsas**—Ra [Sa] and Pa [Ma].
(4). **Varjita Svaras**—Go [Ro] and Dâ [Pa].
(5). **Nyāsa**—Pa [Ma].
(6) **Apanyāsa**—Ra [Sa].
(7). **Vishishta Tānas :**

Nyāsa Tāna—Ra Pa Mâ Pa
[Sa Ma Go Ma].

Upānta Tāna—Pa Mâ Ra Sa Ra
[Ma Go Sa No_1 Sa].

Puraka Tānas : (1). Pa No Sa^1 [Ma Do No].
(2). Sa^1 No Pa [No Do Ma].

The Nyāsa Tāna is based on Tetrachordal Cadence-Norm No. 9(b)—Ra Mâ Pa. The Minor Third (Mâ) above the starting note (Ra) is to be taken obliquely with the Nyāsa (Pa) in order to make the Phrase conclusive. This Rāga is suitable for night.

Illustration :

Rāga—Malkaus.

Tāla—Jhāmptāla.

Āsthāyî : Tānasena.

R̊ S. R: | R̊.P. -: P: | P.Mâ. -: |
Ga - - - - ngā..... ṣho - he.....

P̊: -: P: || P* Mâ P: Ṡ¹: No: No: | P: P: |
shî - - - sha ma - - - hā - de - - - - - va ja - ga

M̊â: -: R: | Ṙ: -: R̊: S: S: | R: P: |
dî - - - - sha yo - - - gî - ga - na dhyā - -

P̊: -: Mâ: | Ṗ: No: | Ṡ¹: No: No: | P.Mâ. P: |
- na - - - me pā - - - - - va - - - - - ta da - - - ra -

M̊â: -: R: ||
- sha - - - na

Antarā :

{ Ṗ.Mâ. P: | P̊: No: No: | Ṡ¹: R¹: | R̊¹: R¹: -: |
su - - - - - nda - ra va - - da - - na pa - - ra.....

Ṙ¹.Ṡ¹. R¹: | Ṗ¹: Ṗ¹: Ṗ¹: Mâ¹: Ṗ¹: | M̊â¹: R¹: R¹: || }
ko - - - - ti su - - ra - - ja jyo - - - - - - ta - - dha - - ra

Ṙ¹: -: | Ṡ¹: No: -: | Ṡ¹: No: | P̊: Mâ: Mâ: ||
bai - - - - la vā - - - - ha - - na a - - - - - nga

Ṗ: No: | Ṡ¹: No: P: | P.Mâ. P: | M̊â: -: R: ||
bha - - - sma - vi - - - - le - - - - - - pa - - - - na

V. FIFTH MODE.

[Amsas Sa and Ma.]

34. KALYĀNA.

[Prim. 1, 5.—No (2) Mela]

Kalyāna or Shuddha Kalyāna is a very ancient Rāga. It is mentioned by Lochana is his Rāga Taranginî. It is also mentioned by Hridaya Nārayana, who described it as a pentatonic Rāga, omitting M and N. These authors put this Rāga in the Iman Mela, corresponding to Mi-Mela of modern Hindusthānî Music.[11] Modern Shuddha Kalyāna also omits

11. It is noteworthy that the ancient author Lochana does not call Mi-Mela by the name Kalyana Mela. This points to the fact that it was well-known in his time that this Mela was imported from Persia, where it was called Yāman. Introduction of Mi-Mela in the Indian musical system brought about a revolutionary change in an ancient musical conception of India. We have seen that Madhyama was considered to be a note of Vedic sanctity, unomissible and unalterable Lochana was quite justified in retaining the original foreign name of the Mela as a mark of the revolutionary change. The first writer who gave the name "Kalyānî" to Mi-Mela was the famous south Indian theorist Venkata Makhi, who was quite cognizant of the fact that it was of Mahomedan origin as will be evident from the following verse of Chaturdandi Prakāshikā :

कल्यानी रागः संपूर्णः आरोहे मनिवर्जितः ।

गीत-प्रबन्धायोग्योऽपि तुरुष्काणामतिप्रियः ॥

This Rāga, which came from the "Turushkas" was not yet acclimatized in his time and not till then fit for the higher styles of music. The north Indian theorist Ahobala, who follows south Indian theorists in many respects, seems to have taken this Rāga from Venkata Makhi's book, as he like him describes it as pentatonic without M and N in ascent. He calls it Kalyāna. The same Rāga appears to have been called Shuddha Kalyāna by the older northern theorist Lochana. It is impossible to say why Lochana put it in Mi-Mela and not Shuddha Mela, although the totally omitted Fourth note might be either Mi or Ma. Most probably some people of his time held the view that sharp Ma and Na could be used in descent of the Rāga. This view seems to have continued till the time of Venkata Makhi and Ahobala. Shuddha Kalyāna Rāga of modern Hindusthānî music, in which

M and N. But, it cannot belong to Mi-Mela, as its Amsas are Sa and Pa, which are unrelated to Mi, a note making a badly dissonant Fourth with Sa. Its inclusion in the Mi-Mela is due to a misconception arising out of the fact that in some compositions Mi is used in oblique motion as an ornamental note extraneous to the Scale. The correct Signature of its Mela is, however, not "Shuddha" as the Mode-octave essential for this Rāga ranges from Pa_1 to Pa. The correct Signature is No. This Rāga is based on the Fifth Mode of Primary First Scale. The notes used in it are given below in just Notation together with those of the customary Mode-octave :

Correct Mode-octave :

*Sa	Rā	(Ga)	*Ma	Pa	*Da	[Nŏ]	Sa^1	
8	9	5	9	8	5	9		

—Prim. 1, 5.

Customary Mode-octave :

*Pa_1	Da_1	(Na_1)	*Sa	Ra	*Ga	[Ma]	Pa
8	9	5	9	8	5	9	

M and N are totally omitted, cannot be put in Mi-Mela, as its Amsas are Sa and Pa. Under these circumstances, use of the name Kalyāna to Mi-Mela only creates confusion. In fact, Bhatkhande, who uses that name, does not give a single composition of Kalyāna Rāga with sharp M in any of his works ; whereas several compositions in Shuddha Kalyāna Rāga without sharp M are given A few compositions in Kalyāna Rāga are found in some Bengali books. These are indistinguishable from compositions in Shudhha Kalyāna Rāga. Kalyāna Ragās mentioned in Rāga Mālā and Rāga Vibodha are Chromatic and Secondary Rāgas, in which sharp Ma is used. It is difficult to explain how the name came to be applied to a Rāga of a Primary Scale.

The statement made in Bhatkhande's books that Mi is used in descent in Shuddha Kalyāna is contradicted in all the compositions given in his books. The custom of calling Rāga Iman in which Shuddha Ma is used together with Tīvra Ma, by the name of Iman Kalyāna points to the fact that originally Shuddha Ma was considered to be the note proper for Kalyāna.

The notes Ga[Na_1] and Nŏ [Ma] are to be omitted. The note Ga [Na_1] is, however, sometimes used in descent.

Lakshanas :

(1). **Grama**—Mukhya Prathama.
(2). **Murchhanā**—Panchamî.
(3). **Amsas**—Sa, Ma and Da [Pa_1, Sa and Ga].
(4). **Varjita Svaras**—Ga [Na_1] in ascent and Nŏ [Ma] both in ascent and in descent.
(5). **Nyāsa**—Sa [Pa_1].
(6). **Apanyāsa**—Ma [Sa].
(7). **Vishishta Tānas :**

Nyāsa Tāna—Da Pa Ma Ră Sa [Ga Ra Sa Da_1 Pa_1].

Upānta Tāna—Sa Ră Ma Pa Da Pa Ma [Pa_1 Da_1 Sa Ra Ga Ra Sa].

Puraka Tānas : (1). Ma Pa Da Sa^1 [Sa Ra Ga Pa].
(2). Sa^1 Da Pa Ma [Pa Ga Ra Sa].

The Nyāsa Tāna is based on Hexachordal Cadence-Norm No. 26 (c)—Da Ră Sa.

The use that is sometimes found to be made of sharp Ma in Shuddha Kalyāna in unusual and unæsthetic. It is used together with the note Da in an ornamental turn over the Amsa Pa. This turn takes the form Pa Da Mi Pa. The note Mi in it is lower by one Anushruti than the modulating note Mî, which makes a false Third with the note Da. It is, therefore, a note extraneous to both the original and the new Scales, and is of no use in the Rāga. The turn, which can be made either on the Mode-Initial Pa_1 or on its octave Pa, produces little effect on the character of the Rāga and is, therefore, useless.

The Nyāsa Tāna of this Rāga is descendicg Major Hexachordal. The only other Rāga, which has a similar Nyāsa Tāna is Laghu Hindola. Both are suitable for morning, though Shuddha Kalyāna is customarily sung in night.

Illustration :

Rāga—Kalyāna.

Tāla—Tritāla.

Āsthāyî :

{D: P: M.R. M: | P.M. M: R: S: | S: R: M: P:
{Bā - jo - - - - - - re bā - - - - - jo..... ma - - - nda - la-

D: P: M: -: } S: R: S: D: | D: D: D: P: ||
rā..... su - gha - ra su - gha - ra na - ra

P: P: D: P: | S¹: D: S¹: -: | S¹: P: D: D: |
nā - ri mi - la ka - -ra - hi····· ā - - na -nda - ra -

D: D: D: P: | D: P: D: S¹: | D: P: M: -:
-ha - sa ra - sa gā - ve -hun ma - nga-la - -rā·····

Antarā :

M: M: P: P: | D: D: S¹: S¹: || S¹: D: D: D: |
E - -ka sa - ma dha-na sa - -nga cha - -u - ka pu -

D: S¹: S¹: S¹: | D: D: S¹: S¹: | S¹: S¹: R¹: R¹: ||
rā - - - - vo····· e - -ka sa - ma dha - na ga - - ra

M¹: -: R¹: R¹: | S¹: D: D: -: | D: D: D: P: |
da - - re - - - - hi ha - ra - vā..... e - - ka ha - sa

D: S¹: S¹: S¹: || S¹: D: D: D: | D: P: M: -: |
ha - sa ghi -sa lā - - - - -vo sa - -nda -la - rā·····

This song is an adaptation of the composition given in K. P. M. IV, 58. It has been written in notes of the correct Mode-octave with Sa as the Mode-Initial in place of Pa_1. The first portion of the Āsthāyî, which has been put within brackets, shows the character of the Rāga and can be repeated. The final *sam* has been placed on the Nyāsa note Sa, corresponding to Pa_1 of the customary form, with which the first syllable of the third bar "ma" is to be sung at the close of the song. The Antarā has been started with Ma [Sa] instead of Sa^1 [Pa] in order to confine the song within the usual voice-register.

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35. GAUD MALLĀRA.

[Prim. 1, 5—No (2) Mela.]

Gaud Mallāra is a variety of Mallara, which is widely known in western India, but seldom sung in Bengal. It is structurally more allied to Megha than to Mallāra. Both Megha and Gaud Mallāra, are based on Primary First Scale and their Nyāsa Tānas are tetrachordal in character ; whereas, Mallāra is based on Primary Fourth Scale and its Nyāsa Tāna is trichordal in character. The point of similarity in these Rāgas is that the Nyāsa Tānas of all of them are ascending and oblique. Gaud Mallāra is distinguishable from Megha by the position of its Characteristic Phrases, which are situated in the Purbānga in the former and in the Uttarānga in the latter. The reasons for including the former in the Mallāra group appears to be that the Characteristic Phrases of both are placed in the Purvānga, and that the Nyāsa and the Upānta Svaras are the same in both the Rāgas, viz. Ma and Pa. These notes of Rāga Megha are Nŏ and Sa[1] respectively of the Uttarānga. Gaud Mallāra is sung in No-Mela and has Sa and Ma as its Amsas. It is, therefore, based on the Fifth Mode of Primary First Scale. The notes used in it are given below in Just Notation :

*Sa	Ră	Ga	*Ma	Pa	Da	[Nŏ]	Sa[1]—Prim. I, 5.
8	9	5	9	8	5	9	

The note Nŏ, which is false Third to Pa, the Upānta Svara, is to be always omitted. Ră, which is false Fourth to Pa, is to be omitted in ascent. Ga is omitted in descent in order to keep open the Minor Third Ma-Ră, peculiar to the Mallāra Group. The notes Ră and Ga can, however, be used obliquely in order to have a turn (āvarta alankāra) over Ga in ascent and over Ma in descent, as shown below.

Lakshanas :

(1). **Grāma**—Mukhya Prathama.
(2). **Murchhanā**—Panchamî.
(3). **Amsas**—Sa and Ma.

(4). **Varjita Svaras**—Nŏ, both in ascent and in descent, Ră in ascent and Ga in descent.

(5). **Nyāsa**—Ma.

(6). **Apanyāsa**—Sa.

(7). **Vishistha Tānas** :

Nyāsa Tāna—Sa Ga Pa Ma.
Amplified Sa Ga Ma Ră Ga Pa Ma.

Upānta Tāna— Ma Ră Sa.
Amplified — Ma Pa Ga Ma Ră Sa.

Puraka Tānas : (1). Ma Pa Da Sa^1.
(2). Sa^1 Da Pa Ma.

The Nyāsa Tāna is based on Tetrachordal Cadence-Norm No. 11(a)—Sa Pa Ma.

Sa is Vādî and Apanyāsa and Ma is Apavādî and Nyāsa. The Nyāsa Tāna is ascending, tetrachordal and oblique, like that or Rāga Megha. The Nyāsa Tāna can be amplified as shown above by including the turn over Ga—Ga Ma Ră Ga. Similarly, the Upānta Tāna can be amplified by Ma Pa Ga Ma, the turn over Ma.

Illustration :

Rāga—Gaud Mallāra.

Tāla—Tritāla.

Āsthāyî :

{M.G. P: | M: G: M: Ră: | S: Ră: S: -: |
Jhu - - ka ā - - - - - yi bā - - da - - ra - vā·····

G: M.Ră. G: P: || M.G. M: } -: -: |
sā - - - - - - va - na - - - kî .....

M: Ră: M: M: | P: P: M: P: | D: S^1: D: P: ||
pi - - yā vi - - na a - - va ma - na bhā - - - va - - na

M.G. M: (M.G. P: |
kî····· (Jhu - ka)

Antarā :

$\overset{0}{M}$: -: P: P: | $\overset{/}{S^1}$: D: S^1: S^1: | $\overset{0}{S^1}$: -: -: S^1: ||
sā - - - -va - na - me····· u - - ma - -ge····· jo -

$\overset{+}{S^1}$.Nŏ. Rā̆^{1}: S^1: -: | $\overset{0}{Rā̆^1}$: M^1: Rā̆^{1} S^1: |
-va - - - -na - - vā····· chbā - - - - - nd cha-

$\overset{/}{S^1}$: -: D: P: | $\overset{0}{D}$: S^1: D: P: || $\overset{+}{G}$: P: M: -: |
le····· pa - ra - de - - - - -sa pi - - ya - ra - vā.....

$\overset{0}{M}$: Rā̆: M: M: | $\overset{/}{P}$: -: M: P: | $\overset{0}{D}$: S^1: D: P: ||
su - dha na - ra hi ... gha - ra ā - - - - va - na

$\overset{+}{M}$.G. M: (M.G. P:) |
kî..... (jhu - - ka)

This song is an adaptation of the composition given in K. P. M., IV. 538.

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36. MIYĀṄ MALLĀRA.

[Prim. I, 5.—No (2) Mela.]

Miyāṅ Mallāra is a beautiful variety of Mallāra, which is said to have been created by Miyān Tānasena. It is, however, on the verge of extinction, as it is found to be almost invariably confounded and mixed up with Darbārī Kānadā[12]. Very little vestige of its Mallāra character is left in this bybrid form. In Bhatkhande's works this Rāga is placed in No-Go Mela, which is the proper Mela for Darbārî Kānadā. The true character of Miyān Mallāra can be brought out if it is placed in No-Go-Do-Mela and the Mode-octave is made No_1 to No. The notes which are to be taken as Amsas are Go and No. The basis of this Rāga is the Fifth Mode of Primary

12. In Rāga Kalpadrumānkura this Rāga is described as Karnāta-misra or mixed with Kānadā, and in Rāga Chandrikā it is described as *Karnāta sadrisha* or similar to Kānadā. In fact it is almost impossible to find out its distinction from Kānadā in the compositions given in K. P. M.. Vol. IV.

The Mallāra character of the Rāga is almost nowhere in evidence in these compositions. This state of things appears to be mainly the consequence of singing the Rāgas in wrong Melas and wrong octaves.

First Scale, which is the same as that of Gaud Mallāra. The notes of the correct and the customary Mode-octaves are given below in Just Notation :

Correct Mode-octave :

*Sa	Rā	Ga	*Ma	Pa	*Da	[Nŏ]	Sa[1]—Prim. I, 5.
8	9	5	9	8	5	9	

Customary Mode-Octave :

*No$_1$	Sa	Ra	*Go	Mâ	*Pa	Do	No
	8	9	5	9	8	5	9

The note Nŏ [Do] is omitted (Rāga Kalpadrumānkura describes it as "Prachchhanna" or hidden Dha). The seventh note of the customary form has, therefore, been mistakenly taken to be Da, instead of Do.

Lakshanas :

(1). **Grāma**—Mukhya Prathama.

(2). **Murchhanā**—Panchamî.

(3). **Amsas**—Sa [No$_1$], Ma [Go] and Da [Pa].

(4). **Varjita Svaras**—Nŏ [Do] both in ascent and in descent, Rā [Sa] in ascent and Ga [Ra] in descent.

(5). **Nyāsa**—Ma [Go].

(6). **Apanyāsa**—Sa [No$_1$].

(7). **Vishishta Tānas :**

Nyāsa Tāna—Sa Ga Pa *Da Ma*
[No$_1$ Ra Mâ *Pa Go*].

Upānta Tāna—Ma Pa (Ga) Ma Rā Sa
[Go Mâ (Ra) Go Sa No$_1$].

Puraka Tānas : (1). Ma Pa Da Sa$_1$ [Go Mâ Pa No]
(2). Sa[1] Da Pa Ma [No Pa Mâ Go].

The Nyāsa Tāna is based on Tetrachordal Cadence-Norm No. 11 (a)—Sa Pa Ma.

It will be observed that Miyān Mallāra is quite similar to Gaud Mallāra in all respects except the Nyāsa Tāna. Distinction in this Tāna has been created by Tānasena by dexterously introducing an open descending Major Third in its oblique cadence. The Nyāsa Tāna of Gaud Mallāra is Sa Ga Pa Ma, while that of Miyān Mallāra is Sa Ga Pa *Da Ma*. The con-

cluding Major Third Da-Ma gives a peculiar flavour to the Rāga and distinguishes it prominently from other varieties of Mallāra. An open descending Major Third is also conspicuous in Darbārī Kānādā It is found in the descending Characteristic Phrase of that Rāga in the form Pa-Go if it is sung in its correct Mode-octave. This is also the form of the Major Third found in the Nyāsa Tāna of Miyān Mallāra sung in the customary Mode-octave, as will be seen above, in the customary form of that Tāna, in which the open interval has been underlined. The presence of this common peculiar interval in both the Rāgas has been the fruitful source of confusion between them. That is why we find that some compositions alleged to be Kānādā are in reality Miyān Mallāra[13]. There need, however, be no confussion if the structures of the corresponding Tānas of the two Rāgas are clearly understood. In the first place, the Tāna of Darbārī Kānādā is descending in character and starts with Pa, while that of Miyān Mallāra is ascending in character and starts with No$_1$. Secondly, there can be no *āndolana* (oscillation) of flat Ga with Ma in Miyān Mallāra, as that (Go) is the concluding note of its Cadence Phrase. That note will be found to be made prominent by its length of duration. Andolana can, however, be made, in this Rāga on Ma with Pa. The form of the *āndolana* allowable in these two Rāgas can for the sake of comparison, be shown thus: Kānādā Pa *Go Mâ Go Mâ* Ra Sa Ra; Miyān Mallāra—No$_1$ Ra *Mâ Pa Mâ Pa* Go. It will be observed that the phrase in Kānadā starts with the open Major Third Pa-Go, while that of Miyān Mallāra ends with that interval. The *āndolana* portions have been underlined.

13. Vide the songs on pages 652, 656, 658, 669, 688 and 689 of K.P.M. Vol. IV, which are given as Darbarī Kānādā. In these compositions Go is the longest note.

But, there is no *andolana* on it. The Pa-Go interval in them is always preceded by No$_1$. On the other hand, most of the compositions given as those of Miyān Mallāra are indistinguishable from Kānādā. Miyān Mallāra in its true form is found in some Bengali songs.

Illustration :

Rāga—Miyān Mallāra.

Tāla—Tritāla.

Āsthayî :

{M: P: | Ġ -: M: M: | Ră: -: S: -: |
Gha- ra jā - - - ne - de chhānd···mo-ri

Ṡ: G: P: D: || Ṁ: -:} -: :- |
ba ·· - - - - - - - i ān·····

Ṁ: M: -: Ră: | Ră: Ră: S: S: |
hā hā ····· ka - - -ra - -ta to - re

Ṡ: G: -: G: || Ṁ: P: M: -: | Ṁ: -: D: D: |
pa - i - ā pa - - ra - ta hā - e mo - - - -ha - na-

Ṗ: D: S¹: S¹: | Ḋ: P: D: D: || Ṁ: -: (M: P:) |
se ··· ···jha - - ga - - ra - - - - i - - - - - - ā ··· ··· (Gha - ra)

Antarā :

Ṁ: M: D: D: | Ṅŏ: Nŏ: S¹: -: | Ṡ¹: S¹: Ră¹: Ră¹: |
Na - ga - -ra ba - - ga - - ra - - ke ··· lo - ga - vā ··· su-

Nŏ: Nŏ: S¹: -: | Ṡ¹: -: M¹: M¹: | Ră¹: Ră¹: S¹: S¹: |
na - ta hā - e cha - - rchā ka - - ra - - ta vri - ja

Ṅŏ: S¹: Ră¹: Nŏ: | Ḋ: -: -: -: | Ḋ: -: D: D: |
nā - - - - - - - - - - ri - - - an ··· ··· ··· jā - o - ji jā

D: Nŏ: D: D: | Ḋ: Nŏ: S¹: D: | Ṗ: Ṁ: (M: P:) |
o- -ji tu - ma khā - o - ge gā - - li - yān (Gha- ra)

This song is an adaptation of the composition given in K. P. M, IV, 658, which in included is the compositions of Darbārî Kānadā.

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37. TILAK KĀMODE.

[Prim. I, 5.—No (2) Mela.]

Tilak Kāmode is a beautiful Rāga capable of creating deep pathos. Confusion is often made about its structure, which is rather complicated. Its constituent phrases are mostly oblique in character[14]. It is customarily sung in the Shuddha Mela,

14. Though its name is like that of a hybrid Rāga it has nothing to do with either Tilak or Tilang or with Kamode.

the Mode-octave used ranging from Pa_1 to Pa and the Amsas being Sa and Pa. Its correct Mela-Signature is No. It is based on the Fifth Mode of Primary First Scale. The notes of its correct Mode and those of its customary Mode are given below in Just Notation :

Correct Mode :

*Sa (Rĕ) Ga *Ma [Pa] *Da Nŏ Sa^1
8 9 5 9 8 5 9

Customary Mode :

*Pa_1 (Da_1) Na_1 *Sa [Ra] *Ga Ma Pa
8 9 5 9 8 5 9

— Prim. I, 5.

The Amsas are Sa and Ma, corresponding to Pa_1 and Sa respectively of the customary Mode. The notes omitted are Rĕ [Da_1] and Pa [Ra]. They are used obliquely in ascent.

Lakshanas :

(1). **Grāma**—Mukhya Prathama.
(2). **Murchhanā**—Panchamî.
(3). **Amsas**—Sa [Pa_1], Ma [Sa] and Da [Ga].
(4). **Varjita Svaras**—Rĕ [Da_1] and Pa [Ra], used obliquely in ascent.
(5). **Nyāsa**—Ma [Sa].
(6). **Apanyāsa**—Da [Ga].
(7). **Vishishta Tānas :**

Nyāsa Tāna—Sa Ga Ma Pa Da Ga Ma
[Pa_1 Na_1 Sa Ra Ga Na_1 Sa].

Upānta Tāna—Ma Sa^1 (Rĕ) Nŏ Da
[Sa Pa (Da) Ma Ga].

The Nyāsa Tāna is based on Tetrachordal Cadence-Norm No. 10(*a*)-Sa Ga Ma

38. NATA.

[Prim. 1, 5.—No (2) Mela.].

Nata or Nata Nārāyana, as it is also called, is an ancient Rāga, which was counted as one of the six Rāgas by some medieval schools of Hindusthānî music. It is, however, seldom sung by modern musicians in its pure form[15]. It is of grave and virile character. It is based on No-Mela and not on Shuddha Mela, as alleged in some books, because Na is badly dissonant to its Amsa Ma, which is used as the Nyāsa. The basis of this Rāga is the Fifth Mode of Primary First Scale. The Amsas are Sa and Ma. The notes used in it are given below in Just Notation :

*Sa	Ră	Ga	*Ma	[Pa]	Da	Nŏ	Sa¹	} Prim. I, 5
8	9	5	9	8	5	9		

The note Pa is omitted in both ascent and descent. It is used obliquely with Ga in ascent.

Lakshanas :

(1). **Grāma**—Mukhya Prathama.

(2). **Murchhanā**—Panchamî.

(3). **Amsas**—Sa and Ma.

(4). **Varjita Svaras**—Pa in ascent and descent ; Ra in ascent and Ga in descent.

(5). **Nyāsa**—Ma.

(6). **Apanyāsa**—Sa.

(7). **Vishishtea Tānas :**

Nyāsa Tāna—Sa Ga Ma.

Amplified—Sa Ga Ma Pa Ga Ma.

Upānta Tāna—Ma Ră Sa.

Puraka Tānas :

(1). Ma Da Nŏ Sa¹.

(2). Sa_1 Nŏ Da Ma.

The Nyāsa Tāna is based on Tetrachordal Cadence-Norm No. 10(*a*)-Sa Ga Ma.

15. Some hybrid forms of this Rāga are found to be used, e. g. Nata Mallāra, Nata Bihāg etc.

Illustration :

Rāga—Nata.

Tāla—Jhāmptāla.

Āsthāyî :

{S: S: | G: G: G: | M: M: M: G: M: ||
Ju - - va - ti ju - - tha sa - na phā - - - - ga

M: G: | M: M: P: | G: M: | M: Ră: S: |}
khe - - - - la - na nan-da - ke lā - - - - - la

M: D: | Nŏ: S¹: -: | D: Nŏ: | D: -: M: ||
ku - - - - - mba - ra····· ho - - - - - ri - - - - ho

M: G: M: P: -: | G: M: | -: Ră: S: |
ho - - - - ri... ..... bo - - - - - - - la - - nā

Antarā :

M: -: | D: D: D: | Nŏ: S¹: | Nŏ: S¹: -: |
Gā - - - - ya na - ta - - nā - - rā - - ya - - na·····

S¹: S¹: | Ră¹: S¹: S¹: | S¹: Nŏ: | Nŏ: D: -: ||
mu - - di - - - ta chi - - ta su - - phā - - - - - - - - ga

S¹: -: | G¹ G¹: G¹: | M¹: M¹: | M¹: Ră¹: S¹ : ||
cha - - - hun di - - sa mi - - la go - - - - - - pa

Nŏ: Nŏ: | D: -: M: | G: M: | -: Ră: S: ||
vā - - la - - - vi - - - nda to - - - - - - - - la - nā

This is an adaptation of the composition given in K. P. M. V, 130, materially modified especially in the Antarā.

39. BĀGESHRÎ.

[Prim. II, 5.—No-Go (3) Mela.]

Bāgeshrî is a great Rāga of solemn character, based on No-Go Mela, having Sa and Ma for its Amsas. This Mela corresponds to the Fifth Mode of Primary Second Scale, which

is the same as the Shadja Grāma of ancient India.[16] The notes used in this Rāga are as follows in Just Notation :

*Sa Ră Go *Ma [Pa] Da Nŏ Sa¹—Prim. II, 5.
8 6 8 9 8 5 9

Of the notes making a false Third, marked by a brace overhead, the lower one must be omitted always.

Lakshanas :

(1). **Grāma**—Mukhya Dvitîya.
(2). **Murchhanā**—Panchamî.
(3). **Amsas**—Sa and Ma.
(4). **Varjita Svara**—Pa.
(5). **Nyāsa**—Da.
(6). **Apanyāsa**—Sa.
(7). **Vishishta Tānas :**

Nyāsa Tāna—Ma Nŏ Da.
Upānta Tāna—Ma Go Ră Sa.

The Nyāsa Tāna, which is a Trichordal phrase, is based on Cadence-Norm on. 2 (d)—Ma Nŏ Da. This Rāga is sung in night. The Nyāsa Tāna of Surat Ma Da Nŏ Sa¹ is often wrongly used as that of Bageshrî.

40. SURAT.

[Prim II, 5—No-Go (3) Mela]

Surat is a very beautiful Rāga which is often confused with Rāga Desha in Western India. It is usually sung in its correct form in Bengal and several classical compositions including Dhrupad songs are sung there.[17] It has some structural resemblance with Rāga Desha. Both these Rāgas

16. Shrî Rāga of Shārngadeva was probably similar in character to Bāgeshrî. Shrî Rāga of Kallinātha was of a different character, as its Amsas were Sa and Pa.

17. Bhatkhande includes this Rāga within the category of "Aprasiddha" Rāgas and gives only a few compositions of it in K. P. M., V. In the Bengali work "Sangîta Manjarî" by Rama Prosanna Banerji, we find some ancient Dhrupad compositions of this Rāga, one of which was composed by Tānasena.

are said to be based on the same two Melas. But, while in Desha the Characteristic Phrases are situated in the Purvānga, in Surat they are placed in the Uttarānga. In both these Rāgas, the Shuddha Mela is said to be used in ascent and the No-Mela in descent, the Amsas being Ra and Pa. In order to avoid confusion between the two Rāgas Shuddha Ni should be eschewed in Rāga Desha and Komala Ni in Surat. The Mode-octave essential for Rāga Surat ranges from Ra to Ra[1] of the upper octave. Sa of the Mid-octave is redundant and non-essential. The Mode-octave, therefore, stands for the Fifth Mode of Primary Second Scale. The notes of the correct Mode-octave used in this Rāga are given below in Just Notation, together with those of the customary Mode-octave :

Correct Octave :

*Sa	Rá	Go	*Ma	[Pa]	Da	Nŏ	Sa[1]	
8	6	8	9	8	5	9		

Customary Octave :

Ra	Ga	Mâ	Pa	Dâ	Na	Sa[1]	Ra[1]	Prim. II, 5.
8	6	8	9	8	5	9		

The correct Mela-Signature is No-Go. Pa and Nŏ which make false Third are marked by braces over-head. Of these Pa [Dâ[is omitted in ascent and Nŏ [Sa[1]] is omitted in descent.

Lakshanas :

(1). **Grāma**—Mukhya Dvitîya.

(2). **Murchhanā**—Panchamî.

(3). **Amsas**—Sa [Ra] and Ma [Pa].

(4). **Varjita Svaras**—Pa [Dâ] in ascent and Nŏ [Sa[1]] in descent.

(5). **Nyāsa**—Sa[1] [Ra[1]].

(6). **Apanyāsa**—Ma [Pa].

(7). **Vishishta Tānas** :

Nyāsa Tāna—Ma Da Nŏ Sa[1] [Pa Na Sa[1] Ra[1]].

Upānta Tāna—Sa[1] Da Pa Ma [Ra[1] Na Dâ Pa].

Puraka Tānas :

(1). Sa Go Ma Pa Ma [Ra_2 Mâ Pa Dâ Pa]
(2). Ma Go Ră Sa [Pa Mâ Ga Ra].

The Nyāsa Tāna is Pentachordal and based on Cadence-Norm No, 15 (d)—Ma Nŏ Sa^1. This Rāga is pre-eminently suitable for night.

Illustration :

Ragă—Surat.

Tāla—Chautāla.

Āsthāyî :

M: -: | P.Go. M: | D: Nŏ: || S^1: -: |
î - - - - - - - - - shwa - rî ... ... ma - - -

Nŏ: D: | Nŏ: -: | Nŏ: D: | Nŏ: Nŏ: |
he - shwa - ri ... .. ja - - ga - - ja - - - na-

S^1: -: || S^1: D: | -: P: | M: -: | Go: Ră: |
-nî ... ... bha - vā - - - - - - - - nî ... ... tu - - - - -

G: Go: | S: -: || Go: S: Go: Go: M: -: |
-ā pra - - sā - - - da- - - - - te su - - - ra... ..

D: M: | D: D: | Nŏ.D. Nŏ: || S^1: -: | D: P:
na - - - - - ra mu - - ni..... ho - - - - - ya jā

M: -: |
ni.....

Antarā :

M: -: | D: D: | Nŏ: -: | S^1: D:
ma - - - - hi - shā - su - - - - - ra - - - -

Nŏ: D: | Nŏ: -: || Nŏ: D: | Nŏ: S^1: |
-ma - rdi - nî..... ā - - - - - - di - - sha -

Go^1: S^1: | S^1: -: | S^1: D: | P: M: ||
-kti - - - - - - ru - - - - - - - - -pi - - nî.....

Go.Ră. Go: | S: Go: | M: D: | D: M: |
ti - - - - - - - - na bhu - va - - - - na.....

Nŏ: D: | Nŏ: -: || S^1.Go^1. S^1: | D: P: | M: -: |
tu - - ma - - ko..... mā - - - - - - - - - - - - - - - - - - ni

This dhrupad song is an adaptation of the composition given in S.M., 366. It has been re-written in No-Go Mela with Sa as Mode-Initial. The syllables have been so arranged and accented as to make the Tāla accord with Mānabaka metre as far as possible. (Vide Ch. XVIII).

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41. DESHA.

[Prim. III, 5—No-Go-Do (4) Mela.]

Desha is a beautiful Rāga suitable for the lighter styles of Hindusthānî music. It is very often confused and mixed up with Rāga Surat. This is due to the facts that the ascending Characteristic Phrase of Desha, which is its Upānta Tāna, is oblique in character, and that owing to the difficulty felt by Kheyal singers in dealing with oblique phrases, this phrase is mutilated and combined with the Nyāsa Tāna of Surat, which is also ascending but direct in character, the conclusion being made on Sa[1] instead of Ra[1]. The Surat character is brought out by giving prominence to note Na. In order to preserve the purity of Desha this note should be avoided carefully. It should also be borne in mind that the Characteristic Phrases of Desha are situated in the Purbānga and those of Surat in the Uttarānga. Rāga Desha is customarily based on No-Mela, but the note Na is sometimes used in ascent. The Note Go is found to be used in some compositions. This note is more suitable for this Rāga as modulating note than Na, as it is perfect Fifth below No, which is a distinctive note of the Rāga. No-Go Mela should, therefore, be taken as the modulating Mela of Desha instead of the Shuddha Mela, which being proper for Rāga Surat, should be avoided. The notes essential for this Rāga range from Ra to Ra[1] of the upper octave. The note Sa of the mid-octave, which is often used, in redundant. The Mela-Signature proper for this Rāga is therefore, No-Go-Do, that of the modulating Mela being No-Go-Do-Ro. The

notes of the correct Mode-octave together with those of the customary Mode-octave are given below in Just Notation :

Correct Mode-octave :

*Sa	Rĕ	Go	*Ma	Pa	Do	Nŏ	Sa[1]
8	6	8	9	5	8	9	

Customary Mode-octave : Prim. III, 5.

*Ra	Ga	Mâ	*Pa	Dâ	No	Sa[1]	Ra[1]
8	6	8	9	5	8	9	

This octave represents the Fifth Mode of Primary Third Scale. The Amsas are Sa [Ra] and Ma [Pa]. Of the two notes making false Third with each other Pa [Dâ] is omitted is ascent and Nŏ [Sa[1]] in descent. Pa [Dâ] may, however, be used in ascent, if the progression stops before reaching Nŏ [Sa[1]], its false Third, and turns back, as done in the oblique Upānta Tāna. The note Rŏ [Go], which can be used as a modulating note, belongs to the Fifth Mode of Primary Fourth Scale[18].

Lakshanas :

(1). **Grāma**—Mukhya Tritîya.

(2). **Murchhanā**—Panchamî.

(3). **Amsas**—Sa [Ra] and Ma [Pa].

(4). **Varjita Svaras**—Rĕ [Ga] and Pa [Dâ] is ascent and Nŏ [Sa[1]] in descent.

(5). **Nyāsa**—Sa [Ra].

(6). **Apanyāsa**—Ma [Pa].

(7). **Vishishta Tānas :**

Nyāsa Tāna—Ma Pa Go Rĕ Sa [Pa Dâ Mâ Ga Ra]

Upanta Tāna—Sa (Go Sa) Go Ma Do Pa Ma [Ra (Mâ Ra) Mâ Pa No Dâ Pa]

Puraka Tānas :

(1) Ma Do Nŏ Sa[1] [Pa No Sa[1] Ra[1]]
(2) Sa[1] Do Pa Ma [Ra[1] No Dâ Pa]

The Nyāsa Tāna is based on Tetrachordal Cadence-Norm No. 12 (e) Ma Rĕ Sa.

18 This note has been very artistically used in the beautiful Bengali song "Chāndini rāte ke go āsilay" by Atul Prosad Sen in the Antara and especially in the Sanchāri period.

It will be observed that the Puraka Tāna No. 2 of Desha is sometimes used as the Upānta Tāna of Surat. The two Rāgas are apt to be confused with each other on account of this wrong use of Do [No] in Surat. Prominence is to be given in Desha to the Tānas of the Purvānga, as these are the Vishishta Tānas of the Rāga. Desha is a descending Rāga suitable for morning, though customarily it is sung in night.

Illustration :

Rāga—Desha.

Tāla—Tritāla.

Āsthāyî :

*S.Go. S: Go: Go: | 0M: -: M: -: | /P: M: M: -: |
Rā - - ma gu - - na gā - - - vo····· re..... tu.....

0Do: P: M: -: | +Do: Nŏ: S¹: Do: | 0Do: Do: P: M: |
ma - - - - nā····· kā - - - - he····· bha - ta - - ka - ta

/M: P: Go: -: | 0Go: Ră: Ră: S: ||
phi - - - - re..... ni - - sa - - di - na.

Antarā :

+M: Go: M: -: | 0Do: Nŏ: S¹: S¹: | /Ṡ¹: Go¹: Rŏ¹: S¹: |
chhi - na bha - - - ngu - ra sa - va ja - ga — - ta - - pa

0Rŏ¹: Nŏ S¹ -: | Ṡ¹: -: Do: -: | 0Do: P: P: M:
-sā - - - - rā..... mā - - - yā - - - - jā - - la vi - ra-

/M: P: Go: -: | 0Go: R: S: -: ||
-thā····· ka - - - - lpa - - - - nā·····

This song is an adaptation of the composition given in K.P.M., III, 252. It has been re-written in No-Go-Do Me with Sa as Mode-Initial instead of Ra. Alterations have been made in the arrangement of notes. The not Da [Na] has been totally omitted in order to avoid semblance of Surat. The range has been extended to Go¹ [Mâ¹]

Most of the compositions of this Rāga given in K.P.M. are mixed up with Rāga Surat.

42. BHAIRAVA, ĀDI.

[Prim. IV, 5—No-Go-Do-Ro (5) Mela].

Rāga Bhairava is one of the six Rāgas according to all the medieval schools of Hindusthanî music, which classify Rāgas into six 'Rāgas' as the lords and thirty-six "Raginîs" as their female consorts. Damodara describes it as the "Ādi Rāga" or the first Raga. The earliest mention of this Rāga is found in Sangîta Ratnākara of Shārngadeva. Shārngadeva and the later authors Damodara and Ahobala describe this Rāga as pentatonic omitting Ri and Pa. It is identified with the sublime figure of the great God Shiva. The modern Rāga of this name is sung in a full Mode of a Secondary Scale, unknown in ancient India, and possesses none of the solemn and sublime character ascribed to the original Rāga according to Shārngadeva. Bhairavî is derived from Rāga Bhairava. Later writers describe it as a wife of that Rāga. Intimate interrelationship between these two Rāgas can be inferred from the almost complete identity of the two names. But, modern Bhairava and Bhairavî are based on two different Scales ; the former being based on a Secondary Scale and the latter on a Primary Scale. As no Scales other than Primary were in existence at the time of Shārngadeva both the Rāgas must have been originally based on Primary Scales. From the descriptions of these two Rāgas found in Sangîta Ratnākara it appears that they were both based on the Fifth Mode of Primary Fourth Scale[19]. Bhairavî was based on the full form of this

19. In Sangîta Ratnākara of Shārngadeva Rāga Bhairava is stated to be a Rāgānga of the Grāma Rāga Bhinna Shadja which is derived from Shadjodîchyabā, a Jati belonging to Shadja Grāma. The positions of the Semitones in the Grāma Rāga are the same as those of modern Shuddha Mela, as it has the notes Antara and Kākali. Ri and Pa being omitted its Scale is to be identified with Primary Fourth Scale. This inference is strengthened by the fact that Dha is stated to be the Amsa. (Vide S. R II, 2, Slokas 78-81). It has been shown elsewhere that Shadja Grāma is converted into Gāndhāra Grāma by the Sādhārana process, that is to say, by inclusion of Antara and Kākali. Gāndhāra Grāma is, as we have seen, identical with Primary Fourth Scale.

Mode and Bhairava on one of its pentatonic forms. The modern form of the Mode used in the original Bhairava Rāga, which we have called Ādi Bhairava, is shown below in Just Notation :

*Sa Rŏ (Go) *Ma Pa *Do [Nŏ] Sa¹—Prim. IV, 5.
5 9 8 9 5 8 9

The ancient form of this Mode was :

*Ga Ma (Pa) *Da Na *Sa¹ [Rä¹] Ga¹
5 9 8 9 5 8 9

It will be observed that the omitted notes Rä and Pa of the ancient form appear as Nŏ and Go in the modern form. The full Mode of modern Bhairava can be had by substituting Ga and Na for Go and No, thus providing Major Thirds above Sa and Pa, and creating a tetrachordal Scale having two quite similar tetrachords.

Ancient Bhairava was, therefore, based on Gāndhāra Grāma. The Murchhanā of Bhairava must have been the same as that of Bhairavî, which was an Upānga of that Rāga. Bhairavî is stated by Shārngadeva to have Ga as its Mandra or Mode-Initial, as will be seen from the following sloka :—

धांश-न्यास-ग्रहा तार-मन्द्र-गांधार-शोभिता ।
भैरवी भैरवोपांगं समशेषस्वरा भवेत् ॥

S. R. II, 2, Sloka 144.

The Mode of Shārngadeva's Bhairavî will be found to be identical with that of modern Hindusthānî Bhairavî, if the Scale used by him be taken to be his Sādhārana Grāma, which is equivalent to modern Shuddha Grāma or Mela.

Shārngadeva mentions another Bhairava called "Shuddha Bhairava", which was one of twenty Deshî Rāgas. Its basis was the same as that of the aforesaid Bhairava, as its Mandra and Amsa are the same, viz. Ga and Dha. It is described as follows :—

धैवतांश-ग्रह-न्यास-संयुतः स्यात् समस्वरः ।
तार-मन्द्रोऽयमाषड्ज-गांधार शुद्धधैवतः ॥

Its difference from the other Bhairava was that it was based on a full Mode. The pentatonic form, however, appears, to have become more popular, as it is only this form which is mentioned by the later writers, Damodara and Ahobala.

Rāgas of solemn and sublime character are usually based on pentatonic Modes. This character is further found to be most prominent in Rāgas which have Hexachordal Characteristic Phrases. The Lakshanas suggested below on these principles will be found to be a near approach to the character ascribed to this ancient Rāga.

Lakshanas :

(1). **Grāma**—Mukhya Chaturtha.
(2). **Murchhanā**—Panchamî.
(3). **Amsas**—Sa, Ma and Do.
(4). **Varjita Svaras**—Go and Nŏ.
(5). **Nyāsa**—Sa.
(6). **Apanyāsa**—Do.
(7). **Vishishta Tānas :**

Nyāsa Tāna—Do Pa Ma Rŏ Sa.
Upānta Tāna—Sa Rŏ Ma Pa Do.

Puraka Tānas : (1) Sa^1 Do Pa Ma.
(2). Sa^1 Do Pa.
(3). Ma Rŏ Sa.

The Nyāsa Tāna is based on Hexachordal Cadence-Norm No. 25(c)—Do Rŏ Sa.

The character of the Rāga is made very prominent by the use of Meed in the descending Major Thirds Ma-Rŏ and Sa^1-Do. Both the Characteristic Phrases are hexachordal. This Rāga is especially suited for morning.

Illustration :

Rāga—Ādi-Bhairava.
Tāla—Jhāmptāla.

Āsthāyî :

* S: Rŏ: | 0 Rŏ: –: M: | / P: –: | 0 Do: –: Do: |
Ha - - - - - ra..... gan - gā - - - - dha - - - - ra
+ Do.P. Do: | 0 P: –: M: | / M: Rŏ: | 0 S: –: –: ||
ma - - - hā - - de - - - - va sha - - - - mbhu . .....
+ M: –: | 0 P: Do: Do: | / S^1: Do: | 0 S^1: S^1: –: ||
bha - - - - sma - - - - bhu - sha - na shi - - va.....
+ S^1: Do: | 0 Do: P: M: | / M: Rŏ: | 0 Rŏ: S: S:
ā - - - di - - de - - - - - va sha - an - - ka - - - - ra

Antarā :

+ Do: M: | 0 Do: S¹: S¹: | ′ Rŏ¹: Rŏ¹: | 0 Rŏ¹: S¹: S¹: ||
gi - - - ri - - jā - - pa - - ti sha - - shi - - she - kha - ra

+ Rŏ¹: S¹: | 0 Rŏ¹: M¹: M¹: | ′ M¹: Rŏ: | 0 Rŏ¹: S¹: S¹: ||
nî - - - la - - ka - - - - - - ntha vri - kha - - vā - - ha - na

+ S¹: Do: | 0 Do: Rŏ¹: S¹: | ′ S¹: Do: | 0 —: P: P: ||
pi - - nā - - ka - pā - - - ni yo - - gî - - - - shwa - ra

+ P: Do: | 0 P: —: M: | ′ M: Rŏ: | 0 Rŏ: S: —: ||
ka - ru - - nā - - - - ni - - - dhā - - - - - na.....

A rarely used Rāga named Gunakrî or Gunakarî is mentioned in K.P.M., V, pp. 316-320, in which only two compositions of the Rāga are given. It is stated to be based on Ro-Do Mela. It is a pentatonic Rāga, in which the third and the seventh notes are omitted. As the note No is sometimes used in this Rāga obliquely with Do, the omitted notes must be Go and No and not Ga and Na, as stated in the book. The correct Mela-Signature must, therefore, be No-Go-Do-Ro and not Ro-Do. This Rāga is thus found to be quite similar in structure to the original Bhairava Rāga, as suggested above. It may, therefore be considered to be a modern replica of that Rāga and will be found to be very helpful in reviving that famous ancient Rāga.

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43. GĀNDHĀRÎ.

[Prim. IV, 5—No-Go-Do-Ro (5) Mela].

Rāga Gāndhārî is based on the same Scale and Mode as those of Adi Bhairava viz., Fifth Mode of Primary Fourth Scale. The Mode used in it is hexatonic, whereas, that of the latter Rāga is pentatonic. The Mode used is as follows in Just Notation :

* Sa	Rŏ	Go	* Ma	Pa	* Do	Nŏ	Sa¹—Prim. IV, 5.
5	9	8	9	5	8	9	

The third note Go has to be omitted in ascent and can be used in descent obliquely.

Lakshanas :

(1). **Grāma**—Mukhya Chaturtha.

(2). **Murchhanā**—Panchamî.

(3). **Amsas**—Sa, Ma and Do.

(4). **Varjita Svara**—Go in ascent and Pa in descent.

(5). **Nyāsa**—Do.

(6). **Apanyāsa**—Sa.

(7): **Vishishta Tānas :**

Nyāsa Tāna—Sa Rŏ Ma Pa Do.

Upānta Tāna—Do Ma Go Rŏ Sa.

The Vishishta Tānas of this Rāga, Ādi Bhairava and Todî are all hexachordal and have the same notes as either Vādî or Nyāsa, viz., Do and Sa.

The Nyāsa Tāna of Gāndhārî is based on Hexachordal Cadence-Norm No. 20(a)—Sa Pa Do. As this hexachordal phrase has an open Major Third between Rŏ and Ma, it is conclusive both in ascent and in descent. In Ādi Bhairava it is used as a descending Nyāsa Tāna and Gāndhārî as an ascending Nyāsa Tāna. Bhairava is, therefore, suitable for morning and Gāndhārî for night.

Illustration :

Rāga-Gāndhārî.

Tāla-Dhāmār.

Āsthāyî :

S: Rŏ: – : | M: – : | – : P: || Do: – : – : |

Ho - - - - - - - rî - - - - - - - men kae - - - - - -

P: – : | – : P: | Do: – : M: | P: Do: | – : – : ||

-se..... ka - ra - - - - - ta cha - tu - - - - - -

Do: – : M: | Go: Rŏ: | S: – : | Rŏ: S: Rŏ: |

- ar - - - - - - - - i..... sa - - khi.....

M: P: | Do: – : || Do: – : M: | Go: Rŏ: | S: – :

mo - - - - ri..... ge - - - - - nda chu - rā - - i.....

Antarā :

+ M: Do: M: | 0 Do: -: | Nŏ: -: | S¹: S¹: -: | 0 S¹: Nŏ: |
la - - kha..... lî - - - - - - - - - - nî ma - sa - - - - kā - - - -
S¹: S¹: | + S¹: -: Rŏ¹: | 0 Rŏ¹: -: | M¹: -: | Go¹: -: Rŏ¹ |
- va - ta kā - - - - - - - ye..... a - ngi - - - - yā
0 S¹: -: | Do: P: | + Do: -: M: | 0 Go:. R: | S: -: |
mā - - - - - ye..... du - - - - - - - - rā - - - - i.....

The Antarā is to be taken after "Horimen".

This Dhamar song is an adaptation of the composition given in K. P. M., VI, page 330. The Tāla accents have been re-arranged and the Antarā has been materially altered.

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44. BHAIRAVÎ.

[Prim. IV, 5—No-Go-Do-Ro (5) Mela.]

Bhairavî is one of the most beautiful popular Rāgas suited especially for morning. It is traditionally associated with Rāga Bhairava. In the time of Shārangadeva it was considered to be an Upānga of the Rāgānga Bhairava. At a later period it came to be regarded as one of the Raginîs of Rāga Bhairava. As the name Bhairavî is the feminine derivative of the name Bhairava, their close relationship must be due to sameness of scale and Mode. We have seen while dealing with what we have called Adi Bhairava that the solemn character ascribed to Rāga Bhairava can be brought out if only that Rāga is based on a pentatonic form of the Scale in which Bhairavî is sung [20]. The Mela on which Bhairavî is based has for its Signature No-Go-Do-Ro. It has Sa and Ma for its Amsas.

20. We have shown in the foot note to Adi Bhairava that according to descriptions found in Sangîta Ratnākara both Bhāirava and Bhairavî were based on Sādhārana-Krita Shadja Grāma, which is the same as the Gāndhāra Grāma which, as we have seen in a preceeding chapter, originally belonged to the Gandharvas and was brought to India by Nārada at the time of Shri Krishna.

Its basis is, therefore, the Fifth Mode of Primary Fourth Scale. The notes of this Mode are given below in Just Notation :

*Sa	Rŏ	Go	*Ma	Pa	*Do	Nŏ	Sa[1]	Prim. IV, 5
5	9	8	9	5	8	9		

The two notes Pa and Nŏ, which make a false Third, are marked by a brace overhead.

Lakshanas :

(1). **Grāma**—Mukhya Chaturtha.

(2). **Murchhanā**—Panchamî.

(3). **Amsas**—Sa, Ma and Do.

(4). **Varjita Svaras**—Go in ascent and Nŏ in descent.

(5). **Nyāsa**—Sa.

(6). **Apanyāsa**—Ma.

(7). **Vishishta Tānas :**

Nyāsa Tāna—Ma Go Rŏ Sa.

Upānta Tāna—Sa Rŏ Ma Pa Ma.

Puraka Tānas : (1). Sa Pa Do Pa.

(2). Go Pa Do Pa.

(3). Do Ma Go Rŏ Sa.

The Nyāsa Tana is based on Tetrachordal Cadence-Norm No. 13 (e)—Ma Rŏ Sa.

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45. IMAN,

[Prim. IV, 5 and I, 7—No-Go-Do-Ro (5) and No-Go-Do-Ro-Po (6) Melas.]

'Iman' is derived from the Persian word 'Yāman'. Rāga Iman is said to have been introduced into the Hindusthānî system by Persian musicians of the Moghul Court. It is based on Mi Mela. It is called Iman Kalyāna if Ma is also used in it. This distinction is illusory. Because, the use of Ma, which is difficult to make and indeed very insignificant in this Rāga, makes no real difference in the structure or character of the

Rāga. Rāga Kalyāna or Shuddha Kalyāna, as it is usually called, is a quite different Raga. It is pentatonic, omitting Ma and Na, and has Sa and Pa as its Amsas, while Iman is a full Rāga and has Ga and Na as its Amsas. The Mode-octaves used in these Rāgas are also different. It is, therefore, difficult to understand how these two Rāgas came to be identified or associated with each other. The word Iman Kalyāna seems to be a misnomer. The Mela-Signature customarily used for this Rāga is not correct. The note Na_1 of the lower octave is essential for the Rāga. The Mode-octave used in it is, therefore, Na_1 to Na. The correct Signature of the ascending Mode-octave is accordingly No-Go-Do-Ro instead of Mi and that of the descending octave is No-Go-Do-Ro-Po instead of "Shuddha". The customary Signatures are used in order to avoid the use of flat Pa, which is prohibited according to popular notions. The notes of the correct Mode-octaves are given below in Just Notation, together with those of the customary Mode-octaves :

In ascent :

Correct Mode-octave :

*Sa Rŏ Go *Ma Pa *Do Nŏ Sa^1
5 9 8 9 5 8 9

Customary Mode-octave :

*Na_1 Sa Ra *Ga Mî *Pa Da Na
5 9 8 9 5 8 9

} Prim. IV, 5

In descent :

Correct Mode-octave :

Sa *Rŏ Go *Ma Pŏ *Do Nŏ Sa^1
5 9 8 5 9 8 9

Customary Mode-octave :

Na_1 *Sa Ra *Ga Ma *Pa Da Na
5 9 8 5 9 8 9

} Prim. I, 7.

It will be observed that the note Ma of the descending customary Mode-octave, which is identical with the note Pŏ of the descending correct Mode-octave, is a false Third to Ra and a badly dissonant Fifth called Diminished Fifth to Na_1.

The only notes to which it is related are Sa and Da, forming with them the consonant triad Sa Ma Da. Only one ascending Tāna Sa Ma Ga and only one descending Tāna Da Ma Ga can be framed with this note. It is extremely difficult to co-ordinate these phrases with the other phrases of the Rāga. The ascending phrase is especially difficult to use, as the starting note Sa is almost always closely associated with Na_1, which is badly dissonant to the penultimate note Ma. In fact such uses of Ma are never found in actual practice. The use that is occasionally made of it is not as the modulating note Ma, but as the extraneous note Mâ in an ornamental turn over Ga : thus, Ga Ra Mâ Ga.

Lakshanas :

(1). **Grāmas**—Mukhya Chaturtha in ascent and Mukhya Prathana in descent.

(2). **Murchhanās**—Panchamî and Saptamî respectively.

(3). **Amsas**—Sa, Ma, Do [Na_1, Ga, Pa,] ; and Rŏ, Ma, Do [Sa, Ga, Pa] respectively.

(4). **Varjita Svaras**—Go [Ra] and Nŏ [Da] in ascent and Pŏ [Ma] or Pa [Mî] in descent.

(5). **Nyāsa**—Do [Pa].

(6). **Apanyāsa**—Rŏ [Sa].

(7). **Vishishta Tānas :**

Nyāsa Tāna—Sa Rŏ Ma Pa Do [Na_1 Sa Ga Mî Pa].

Upānta Tāna—Do Ma (Go) Sa Go Rŏ [Pa Ga (Ra) Na_1 Ra Sa].

Puraka Tānas :—

(1). Sa Rŏ Pa Ma [Na_1 Sa Mî Ga].

(2). Do Go Ma [Pa Ra Ga].

(3). Sa^1 Pa (No) Do [Na Mî (Dâ) Pa].

(4). Ma Pa Do (Sa^1) $Rŏ^1$ Sa^1 [Ga Mî Pa (Na) Sa^1 Na]

(5). Sa^1 Do Pa Ma [Na Pa Mî Ga].

The Nyāsa Tāna is ascending and hexachordal ; and the Upānta Tāna is descending oblique and tetrachordal. The Nyāsa Tāna is based on Hexachordal Cadence-Norm No.

21 (a)—Sa Pa Do. It is a very popular great Rāga capable of many variations and sung in night, especially in the evening period.

Illustration :

Rāga—Iman.

Tāla—Chautāla.

Āsthāyî :

*P:	R:	0 R:	G:	/ G:	-:	/ P:	G:
Ā - - - - - -		na - - - - - -		ndî.....		ja - - -	ga -
0 R:	N:	/ R. S.	S:	+ N_1:	S:	0 G:	G:
-va - - - - -		ndî.....		tri - - - - -		pu - -	rā...
| R:	S:	| N_1:	S:	0 G:	Mî:	| P:	-:
-su - - - - -		nda - - - -		rî	mā - -	tā.....	
+ N:	Mî:	0 Mî:	Dâ:	| P:	-:	| G:	G. R.
bha - - - - -		vā - - - - -		nî.....		da - yā - -	
0 N_1:	R:	| S:	-:	+ N	S:	0 G:	-:
- - - - - - -		nî.....		..... da - - - - -		yā.....	
| R:	S:	| N_1:	S:	0 G:	Mî:	| P:	--
ka - - - -		rma.....		dā - - - - -		nî.....	

Antarā :

+ P:	P:	0 P:	P:	| D. P.	S^1:	| S^1:	S^1:
dha- - -na		dha- - -na		sang - - - -		ka - - ta -	
0 S^1:	S^1.N.	| R^1:	S^1:	+ N.S^1.	D:	| 0 S^1:	R^1:
-shi - - vā -		nî...	...	sha - - - -		rvā.....	
| R^1:	S^1,R^1,S^1.	| S^1:	D:	| 0 D:	D.Mî.	| D:	P:
-nî		sa - rva		ka - lyā - -		nî.....	
+ P:	-:	| 0 N:	D:	| D:	P:	| Mî:	G:
ma - - - - -		hā - - - -		ru - - - - - -		drā - - -	
0 G.R.	G:	| R:	S:	| + S.N_1.	S:	| 0 S.	G: ; R,
- - - - nî		de.....		rā - - -		ga a - -	chchha-
| G:	-:	| P:	Dâ.Mî.	| P.G.	R.N_1.	| R:	S:
-ra.....	...	su - - - - -		dhā	vā - -	nî.....	

This song is an adaptation of the Dhrupad composition given in G.S.S., II, 64. This composition is defective, as the Rāga character is incomplete. There is no ascending Perfect Phrase in it. The ascending Nyāsa Tāna has been put at the ends of the two sections of the Āsthāyî period. There can be no satisfactory conclusion without this Tāna. The descending Upānta Tāna has, however, been beautifully blended with the Puraka Tānas. The song has been written above in notes of the customary Mode-octave. Shuddha Ma, which has been used only once in the whole composition, has been left out as useless ; and the Rāga has been called Iman.

VI. SIXTH MODE.

(Amsas Ga and Na).

46. SHANKARĀ.

[Prim. IV, 6 and I, 1.—Mi (7) and Shuddha (1) Melas].

Shankarā is an elegant night Rāga, which is rather complicated in structure. It is based mainly on the Sixth Mode of Primary Fourth Scale. The First Mode of Primary First Scale is also used. The Characteristic Phrases are based on the former Mode and the Complementary Phrases on the latter. Ga, Pa and Na are Amsas of the main Mode and Sa, Ga and Pa those of the other Mode. The Mela-Signatures are Mi and Shuddha[21]. The notes of the two Modes used in it are given below in Just Notation :

Sa Ra *Ga Mî *Pa Da *Na Sa¹ — Prim. IV, 6.
9 8 9 5 8 9 5

and

*Sa Ra *Ga Ma *Pa Da Na Sa¹ —Prim. I, 1.
9 8 5 9 8 9 5

21. In Bhatkhande's works the Rāga is stated to be based on Vilāval or Shuddha Mela. But Mi is used as a touchnote in many of the compositions given in K. P. M. This note is essential for the Upānta Tāna. The basis, is therefore, the Mi Mela.

The fourth note of the first of these Modes is false Third to Da and the fourth note of the second Mode is false Third to Ra. This degree is said to be totally omitted in this Rāga. But, the note Mî, which is perfect Fourth below the Amsa Na is essential for the Rāga, as the Upānta Tāna becomes imperfect without this note. The note Ma of the second Mode can be used in the ascending Puraka Tāna. It is, however, to be omitted in the descending Puraka Tāna, as it is false Third to Ra, which is used in this Tāna. Ra is omitted in the ascending Puraka Tāna, as Ma is used in this Tāna. As the Characteristic Phrases, which are situated in the Uttarānga, are both based on the Fourth Scale, the note Da, which is false Third to Mî, is to be omitted both in ascent and in descent. It can be used obliquely in the ascending Nyāsa Tāna. It is, however, not indispensable in this Tāna, as there are compositions in which this note is totally omitted[22].

Lakshanas :

(1). **Grāmas**—Mukhya Chaturtha and Mukhya Prathama.

(2). **Murchhanās**—Shashthî and Prathamā respectively.

(3). **Amsas**—Ga, Pa, Na and Sa, Ga, Pa respectively.

(4). **Varjita Svaras**—Da in ascent and descent, Ra in ascent and Ma in descent.

(5). **Nyāsa**—Na.

(6). **Apanyāsa**—Pa.

(7). **Vishishta Tānas :**

Nyāsa Tāna—Ga Pa Na Da Sa[1] Na.

Upānta Tāna—Na (Pa) Mî Pa.

Puraka Tānas : (1). Sa Ga Ma Pa.

(2). Pa Ga Ra Sa.

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22. The statements regarding omissibility of notes in the works of Bhatkhande are partly confusing and partly wrong It is stated that according to one view both the second and the fourth notes are to be omitted, while according to another view only the Fourth note, is to be omitted. We have shown that Mî cannot be omitted in this Rāga. Nothing is stated about the omissibility of Da.

The Nyāsa Tāna is based on Pentachordal Cadence-Norm No. 16(c)—Ga Sa¹ Na. It is a conclusive phrase, because the open Major Third interval between Pa and Na is more prominent than the open Minor Third interval between Ga and Pa.

Illustration :

Rāga-Shankarā.

Tāla-Tritāla

Āsthāyî ;

*N: S¹: N: —: | °Mî: —: P: —: | /G: P: N: —: |
Ga - - - - u - - - - - - ā - - - - - - - - an cha - rā - - - - - -

°D: S¹: N: —: | +P: Mî: P: —: | °G: P: G: —:
ā - - - - - ve..... ha - ri..... va - na - - - - - -

/G: R: —: —: | S: —: —: —: | +S: —: G: G: |
vā - - - - - - - - - - rî..... bā - - - - ra - na -

°M: P: —: —: | /G: P: N: —: | °D: S¹: N: —: ||
ke..... ..... sā - - - - - - - - - - ā - - - - tha.....

Antarā :

+P: P: G: —: | °P: —: N: —: | /S¹: S¹: —: —: |
ja - mu - - - - - - - nā - - - - ke..... ta - - ta.....

°S¹: N: N: —: || +S¹: N: —: —: | °S¹: S¹ G¹ —: |
pa - - - - - ra..... mu - ra - - - - - - - lî..... ba - - -

/Mî¹: G¹: —: —: | °S¹: —: N: —: | +N: S¹: N: —: |
-jā - - - - - - - - - - - - ve.. ... . ji - - yā - - - - - -

°Mî: —: P: —: | /Mî: N: —: —: | °D: S¹: N: —: ||
-rā..... lu - - - - - bhā - - - - - - - - - - - - -

This song is an adaptation of the composition given in K. P. M., IV, 209. It has been materially altered specially in the Antarā.

VII. SEVENTH MODE.

(Amsas Rā and Da or Rŏ and Do.)

47. BIHĀG.

[Prim. I, 7.—No-Go-Do-Ro-Po (6) Mela.]

Bihāg is a very popular Rāga, capable of creating deep pathos. It is said to be based on Shuddha Mela. But, as the note Na_1 of the lower octave is essential for the Rāga and consequently the Mode-octave actually used in the Rāga is Na_1—Na, it is in reality based on the five flats Mela No-Go-Do-Ro-Po. This Mela is, however, not used, because it includes flat Pa, which is repugnant to popular notions. The Amsas are Sa, Ga and Pa. The notes Ra and Da are both omitted in ascent and only Ra is usually omitted in descent[23]. This Rāga is, however, essentially pentationic both in ascent and in descent. The basis of Bihāg is, therefore, the Seventh Mode of Primary First Scale. The notes used in it are given below in Just Notation ;

Proper Form :

Sa	*Rŏ	[Go]	*Ma	Pŏ	*Do	(Nŏ)	Sa^1	$Rŏ^1$
5	9	8	5	9	8	9	5	

Current Form :

Na_1	*Sa	[Ra]	*Ga	Ma	*Pa	(Da)	Na	Sa^1
5	9	8	5	9	8	9	5	

} Prim. I, 7

The note Go (Ra) must be omitted both in ascent and in descent, as it is false Third to Pŏ [Ma], which is essential for the Rāga, being the Nāyaka Svara of the Nyāsa Tāna, and a constituent of the Upānta Tāna. The note Nŏ [Da] is sometimes used in descent. Both the omitted notes can be used obliquely in ascent, if the Rāga is sung in a purely pentatonic form. The oblique of Go [Ra] is usually found in the Antarā.

Pa [Mi] is found to be used in some compositions of Bihāg, So [No] is also found to be used in some other compositions.

23. Use of Ra, which is sometimes found to be made in descent vitiates the character of the Rāga.

These notes are used in the Puraka Tānas. Where Pă (Mi) is used there is modulation to Primary Third Scale. This is a very ingenious modulation. As the note Go [Ra] is always omitted, the Scale may be treated either as Primary First or Primary Fourth Scale. The modulation is made by treating the Scale as Primary Fourth. The note Pă [Mi], which converts the Fourth Scale into the Third Scale, is then used as a Minor Third below Nŏ [Da], which, is an Amsa of both the Third and the Fourth Scales and can as such have double Thirds below it[24]. where So [No] is used there is modulation to Primary Second Scale from Primary First Scale. This note is then used as a Minor Third above Do [Pa], which is an Amsa of both the Scales. These modulations are, however, not essential for the Rāga and are made only occasionally.

Lakshanas :

(1). **Grāma**—Mukhya Prathama.

(2). **Murchhanā**—Saptamî.

(3). **Amsas**—Rŏ [Sa], Ma [Ga] and Do [Pa].

(4). **Varjita Svaras**—Go [Ra] and No [Da], both of which can be used obliquely in ascent.

(5). **Nyāsa**—Ma [Ga].

(6). **Apanyāsa**—Rŏ [Sa].

(7). **Vishishta Tānas :**

Nyāsa Tāna—Rŏ Ma (Pŏ Do) Pŏ Ma
[Sa Ga (Ma Pa) Ma Ga].

Upanta Tāna—Do Pŏ Ma Rŏ Sa Rŏ
[Pa Ma Ga Sa Na_1 Sa].

Puraka Tānas : (1). Ma Do Nŏ [Ga Pa Da].
(2). Nŏ Pă Do Ma Pŏ Ma
[Da Mi Pa Ga Ma Ga].
(3). Nŏ Do So Nŏ Do Pŏ Ma
[Da Pa No Da Pa Ma Ga].
(4). Pŏ Ma Pŏ Do [Sa Ga Ma Pa].
(5). $Rŏ^1$ Sa^1 Do Pŏ Ma
[Sa^1 Na Pa Ma Ga].

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24. The use of Mi sometimes made in the combination Pa Mi Ga Ma Ga or Pa Mi Ma Ga is wrong. Correct Phrases would be Da Mi Pa Ga Ma Ga and Da Mi Ma Ga, in which Mi and Ma are both related to Da as Thirds.

The descending Puraka Tāna No. (2) or (3) may be used with the ascending Tāna No. (1); and the descending Tāna No. (5) may be used with the ascending Tāna No (4). The ascending Tāna No. (1) concludes with Nŏ [Da], an Amsa of the Fourth and the Third Scales; and the ascending Tāna No. (4) ends with Do [Pa], an Amsa of the First Scale. The descending Tānas Nos. (2), (3) and (5) all end with Ma [Ga], which is an Amsa of all the Scales. It is on this note, which is popularly known as the Samvādî, that the Nyāsa Tāna or, in other words, the whole Rāga, terminates. The Upānta Tāna ends with Rŏ [Sa], which is an Amsa of both the First and the Fourth Scales. The Nyāsa Tāna is ascending, trichordal and oblique in character. It is based on Trichordal Cadence-Norm No. 2(*b*)—Rŏ Pŏ Ma, which is only a different form of the Cadence-Norm of Rāga Gaud Sāranga Sa Ma Ga. As allied ascending Rāgas, they are both suitable for night, though customarily Gaud Sāranga is sung in day time.

48. BHIMPĀLSHî, PRATHAMA.

[Prim. III, 7—Shuddha (1) Mela.]

Bhimpalāshî or Bhimpalashrî, as it is sometimes called, is a popular Rāga of great beauty, which is said to be based on No-Go Mela. Its Amsas are Sa and Pa. The notes Ra and Dha are omitted in ascent and the note Ma is omitted in descent[25]. As the true charac-ter of the Rāga cannot be

25. Bhatkhande states in his Sanskrit book "Lakshya Sangîtam" and other Marathi works that the Vādî and Nyāsa of Bhimpalāshî is Ma. The following verses are found in his Sanskrit work :

"काफी-मेल-सुसंजाता प्रोक्ता भीमपलासिका ।
आरोहे रिधहीनं स्यादवरोहे समग्रकम् ॥
मध्यमांशग्रहन्यासा मुक्तमध्यममंडिता ।'

This definition is identical with that of Dhanāshrî given by Ahobala, which has been quoted in the foot-note under Rāga

shown without No_1 of the lower octave, the correct Mode-octave for the Rāga is No_1 to No. This octave represents the Seventh Mode of Primary Third Scale. If this octave is made to start from Sa, as usual, instead of No_1, the Mela

Dvitîya Bhimpalāshî. It has been shown in that foot-note that Dha cannot be omitted from a Rāga which has Sa and Ma for its Amsas. Sa and Pa must be the Amsas of a Rāga, in which Ri and Dha are omitted, and Ri and Pa must be the omitted notes of a Rāga in which Sa and Ma are the Amsas. Omission of Dha from Danāshrî, as defined by Ahobola, is a mistake, as has been stated in the aforesaid foot-note. Bhimpalāshî is an ancient Rāga of northern India, which is mentioned by Lochana Pandita. Hridaya Nārāyana, who follows Lochana in all respects, states in his Hridaya Prakāsha that Bhimpalāshî is devoid of Dha. Its omission from modern Bhimpalāshî is also universally admitted. The Amsas of this Bhimpalāshî must, therefore, be Sa and Pa, and not Sa and Ma as stated by Bhatkhande. There has been a lot of confusion between the ancient Bhimpalāshî of northern India and the Dhanāshrî imported from Southern India, which, as we have shown, has Sa and Ma for its Amsas. It appears that this southern Rāga has almost supplanted the ancient beautiful Bhimpalāshî in Western India and is going under the name of the latter Rāga, as will be evident from the compositions of Bhimpalāshî given in K. P. M., III. In order to avoid this confusion we have treated the southern Dhanāshrî as a variety of Bhimpalāshî and called it Dvitîya (Second) Bhimpalāshî. The original Bhimpalāshî, which has been distinguished as Prathana (First), is a very popular Rāga in Bengal. Poet Tagore has composed some beautiful songs in it. It is believed by some musicians that Bhimpalāshî was created by combination of two Rāgas called Bhima and Palāshî. We donot believe in this theory of creation of Rāgas by mixture. That theory cuts at the very root of the conception of Rāga, as we have stated elsewhere. It is, however, quite possible that a Rāga can be developed from two or more Rāgas of similar structure sung in different parts of the country. This is what appears to have been the case with Bhimpalāshî. In H. S. P. IV, 125 Bhatkhande states that the Mahant of a Math in village Chapra near Gaya showed him a collection of Dhrupad compositions, which included two in Rāgas called Bhima and Palāshî. These compositions have been reproduced in pages 126 and 127. It appears from them that their structure was quite similar to that of modern Bhimpalāshî.

becomes "Shuddha" (natural). The notes of the correct form of the Rāga are given below in Just Notation, together with those of the customary form :

Correct Form :	Sa	*Ră	[Ga]	Ma	Pă	*Da	(Nă)	Sa¹	Prim. III, 7.
		8	9	5	8	9	8	6	
Customary Form :	No₁	*Sa	[Ra]	Go	Ma	*Pa	(Da)	No	
		8	9	5	8	9	8	6	

The notes, which are put within brackets, are omitted in ascent.

Lakshanas :

(1). **Grāma**—Mukhya Tritîya.

(2). **Murchhanā**—Saptamî.

(3). **Amsas**—Ră [Sa] and Da [Pa]..

(4). **Varjita Svaras**—Ga [Ra] and Nă [Da] in ascent ; and Pă [Ma] in descent.

(5). **Nyāsa**—Da [Pa].

(6). **Apanyāsa**—Ră [Sa].

(7). **Vishishta Tānas :**

Nyāsa Tāna—Ră Sa Ră Pă Ma Pă Da [Sa No₁ Sa Ma Go Ma Pa].

Upānta Tāna—Da Ma Ga Ră [Pa Go Ra Sa].

Puraka Tāna : Ră¹ Sa¹ Nă Da [Sa¹ No Da Pa].

The Nyāsa Tana is based on Pentachordal Cadence-Norm No. 15(*b*)—Ră Pă Da. Ră [Sa] is Vadî and also Apanyāsa ; and Da [Pa] is Apa-vādî and also Nyāsa. The Nyāsa Tāna is based on an extended pentachord and has the solemn effect of a hex-chordal phrase. The notes Ga [Ra] and Nă [Da], which are omitted in ascent can be used in this phrase obliquely in ornamental

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The note Pa is prominent in both of them. The ascending Characteristic Phrase of Bhimpalāshî is found in them and concludes with Pa. The only difference is that Dha is totally omitted in Palāshî and it is used obliquely in an āvarta alankāra of the Nyāsa note Pa in Bhima. The modern Bhimpalāshî uses both these forms of the phrase and may, therefore, be considered to be a developed form of both these Rāgas. Pa was evidently an Amsa of these Rāgas. This is a good evidence of the use of Pa as one of the Amsas of modern Bhimpalāshî which was evolved from these two Rāgas.

turns (Āvarta Alankāra) over the Amsas Ră [Sa] and Da [Pa], thus : Ră Ga Sa Ră [Sa Ra No$_1$ Sa] and Da Nă Pă Da [Pa Da Ma Pa]. This Rāga is usually sung in the after-noon. It can be sung with good or, perhaps, better effect in the first part of night, when Rāga Iman is sung.

The open Thirds above the Amsas of Bhimpalāshî are Minor. Another variety of this Rāga is mentioned by Lochana Pandit and Hriday Nārāyana, in which those open Thirds were Major. It had Ga and Na instead of Go and No of the modern Rāga. In other respects the two varieties are just similar. The notes of the older variety are :—

Na$_1$ Sa [Ra] Ga Ma Pa (Da) Na
5 9 8 5 9 8 9

With Sa as Initial it would stand thus :

Sa *Rŏ [Go] Ma Pŏ *Do (Nŏ) Sa^1
5 9 8 5 9 8 9

This is the Seventh Mode of Primary First Scale. Its Mela-Signature consists of five flat notes including flat Pa, which is not used in Hindusthānî music.

The modern Rāga may be called Laghu Bhimpalāshî and the older one Āyata Bhimpalāshî according to the Minor and the Major characters of the open Third above their Amsas. There is no reason why the older variety should not be revived.

In his beautiful song beginning with "Āmār sakal dukher pradîp jele", Tagore used flat Dha in a Minor Third turn about the Nyāsa note Pa distinctly adding to the flavour of the song. This flat Dha makes a modulation to the Primary Fourth Scale. The notes of this converted Mode in its correct and customary forms are given below :

Correct Form :

Sa *Ră Ga Ma Pă *Da Nŏ Sa^1
8 9 5 8 9 5 9 Prim. IV, 7.

Customary Form :

No$_1$ *Sa Ra Go Ma *Pa Do No
8 9 5 8 9 5 9

This song of Tagore may by considered to be based on a distinct variety of Bhimpalāshî.

The Minor Third Ma [Go] above the Vādî Ră [Sa] is to be taken obliquely with the Fourth Pă [Ma] above it in order to make the Final Phrase conclusive. Such oblique use of the Third is not required in the old Rāga referred to above as Āyata Bhimpalāshî.

Illustration : **Rāga—Bhimpalāshî.**
Tāla—Chautāla.

Āsthāyî :

Ră.S. Ră: | Ră: D: | D: Pă: || D: Nă D. |
Ra - - - - - - tha - ki ga - - - - - ru - - - - -

D: Pă: | D: -: | M: -: | -: Pă: | D: -: ||
da dhu - la..... ā - - - - - - - smā - pe.....

M: G: | G: S: | Ră: -: |
chhā - - - - - - - - - ye.....

Ră: Ră: | S: D.Nă. | D: -: || M: -:
dao - - de da - - o - - - de····· de - - - -

M: G: | Ră: -: Ră S. Ră: | Pă: M: | Pă: -: |
-kha - ne - ko····· ja - - - - - - du - - - - nâth·····

D: -: | -: Pă: | D: -: |
ā - - - - - - - - - ye hāe.....

Antarā :

D: Pă: | D: D: | S¹: -: || Ră¹: -: | G¹: S¹: |
pā - - - - - ti - hun - ke..... bhe - - - - - ja - - ne -

Ră¹: -: | Ră¹.S¹. Ră¹: | M¹: G¹: Ră¹: -: ||
-ko..... chhi - - - - - - - na - - hun na·····

Ră¹: Nă: | S¹: Nă: | D: -: |
lā - - - - - - - - - - gi bār·····

Nă: D: | D: Pă: | D: -: || D: Ră: | Ră: Nă: |
do - - ā - re - kā - ko..... chhā - - - nd par -

S¹: -: | Nă: S¹: | Nă.S¹. Nă: | D: -: ||
-bhu..... ku - - - - - nja - - - na - ko·····

Nă: -: | -: Pă: | D: -: |
dhā - - - - - - - ye hāe

The Dhrupad composition given above is a beautiful specimen of the Rāga, which we chanced to pick up from the Calcutta Radio broadcast when the renowned musical teacher of Bengal Girija Shankar Chakravarty was kind enough to teach music through Radio for some time. Alteration of a few notes and of the rhythmic arrangements of syllables has been made.

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49. MALLĀRA.

[Prim. IV, 7—No. (2) Mela.]

Though a Rāga of ancient fame, Mallāra is seldom heard in modern Hindusthānî music. Classical compositions in this Rāga are very rare. It is, therefore, difficult to ascertain its true character. A few classical songs are found in works published by musicians of the Bengal School. These too do not appear to have been correctly preserved. The character of the Rāga, as it appears from classical compositions, is brought out in a Mode containing flat N; but, in most of the existing compositions natural N is used. G is invariably omitted in ascent and is sometimes used obliquely in descent. R, M and D are found to be the strongest notes. They are, therefore, the Amsas. No-Mela with these notes as Tonics gives the following Mode in Just Notation :—

Sa	*Rĕ	[Ga]	*Ma	Pĕ	*Da	Nŏ	Sa[1]	Prim. IV, 7.
8	9		5 8	9	5	9		

This is the Seventh Mode of Primary Fourth Scale. The false Third Ga-Pĕ is marked by a brace overhead.

This Rāga is associated with the rainy season and all compositions in it contain descriptions of that season. In ancient times, however, it was sung in all seasons and in all parts of the day. It was so popular that it was considered to ractify the fault of singing a Rāga in a wrong time of the day.

It is, however, doubtful whether it has preserved its ancient character.

Lakshanas :

(1). **Grāma**—Mukhya Chaturtha.
(2). **Murchhanā**—Saptamî.
(3). **Amsas**—Rā, Ma, Da.
(4). **Varjita Svara**—Ga.
(5). **Nyāsa**—Ma.
(6). **Apanyāsa**—Sa.
(7). **Vishishta Tānas :**
Nyāsa Tāna—Rā Pā Ma.
Upānta Tāna—Ma Rā Sa.

The Adhara Amsa Rā is used as the Vādî and the Madhya Amsa Ma as the Apa-vādî. Mallāra is one of the rare Rāgas based on Simple Scales, wherein Trichordal Cadence is used. The cadence is oblique, Pā being used as the Upānta Svara of the Nyāsa Ma. This note is related to the omitted note Ga as false Third, which is sometimes lowered by an Anushruti making it Gā, in order to make it a true Minor Third to Pā. This note Gā is used obliquely in a turn on the Nyāsa Ma thus : Rā Pā Gā Pā Ma. The Nyāsa Tāna is based on Trichordal Cadence-Norm No. 3(b)—Rā Pā Ma.

Illustration :

Rāga—Mallāra.

Tāla—Teot.

Āsthāyî : Sadāranga

{Rā: Pā: | M: Rā: S: | Rā: Pā: Gā: Pā: ‖
{Mā - yî ga - ga - -nu - -vā... ... ga - -ra - -

M: -: -: | M: -: } Rā: Pā: | M: Gā: M: |
-je..... pi - - yā vi - - - - - na

D: -: Nō: Pā: ‖ Rā: Pā: M: | M: -: (Rā: Pā:) |
ji - -ya mo - -rā la - - ra - - je..... (Mā - - yî)

Antarā :

M: M: | D: -: Nŏ: | $\overset{0}{S}^1$: S^1: Nŏ: S^1: |
E - -ka ān - - - -dhi - - yā - -ri du - - je

$\overset{+}{S}^1$: Rĕ^1: Rĕ^1: | $\overset{0}{S}^1$: Nŏ: D: -: |
vi - - ja - - - ri cha - ma - ke.....

S: -: -: | $\overset{0}{M}$: -: Rĕ: S: || $\overset{+}{D}$: Nŏ: D: |
ti - - - - - - je..... sa - - dā - ra - - - - - nga

$\overset{0}{D}$: Pĕ: -: -: | Nŏ: D: -: | $\overset{0}{P}$ĕ: M: Rĕ: -: ||
ha - ri..... ..... vi - - na····· ji - - - - - yā·····

$\overset{+}{R}$ĕ: Pĕ: M: | $\overset{0}{M}$: -: (Rĕ: Pĕ:) |
la - - ra - - je····· (Mā - -yî)

This is an adaptation of the song in S.M. (2nd edition) p. 587, which has been materially modified.

CHAPTER XVII.

RĀGAS OF SECONDARY AND CHROMATIC SCALES.

I. RĀGAS OF SECONDARY SCALES.

Considered from the number of consonent relationships of notes the Secondary Scales stand in a position inferior to that of the Primary Scales. The number of Rāgas based on Secondary Scales is consequently found to be quite insignificant as compared with that of Rāgas belonging to Primary Scales, though the number of Scales included in the two groups are equal in number. Only a few Rāgas are found in the First, Second and Fifth Secondary Scales, no Rāgas being found in the other two Scales. The Fifth is the most popular Scale of the Secondary Group. The main reason for its popularity is that, being a purely tetrachordal Scale, it has no pentachord which is difficult to sing owing to the presence of a false Third. It can be used as a full Scale with a continuous chain of consenant Thirds, which allows easy progression. As such it is very convenient for teaching beginners, for which purpose it is used in Southern India. As regards structural quality, however, it is one of the worst Scales, containing, as it does, three Tritones unlike any other Scale. These are Rŏ-Pa, Ga-Do and Ma-Na. It is very difficult to construct good pentachordal and hexachordal phrases in it owing to the presence of these Tritones. Again not being a bicentric Scale, the centres have to be shifted according to the character of the phrase to be constructed for a Rāga. For example, the centres (Amsas) may be either, Sa and Ma, or Sa and Pa, or Sa and Do, or Ga and Sa^1. Sa must be one of the Amsas, the other being either Ga or Ma or Pa or Do. In pentachordal phrases with Sa and Pa as Amsas the note Ro, which is a tritone below the Amsa Pa, must be omitted ; and in pentachordal phrases with Ma and Sa^1 as Amsas the note Na,

which is a tritone above the Amsa Ma, must be omitted. By such omissions the Scale is practically converted to Secondary Third and Second Scales respectively. In hexachordal phrases with Sa and Do as Amsas the note Ga though a Major Third above the Amsa Sa, must be made weak as it is a tritone below the Amsa Do ; and the adjacent note Ma must be made strong and prominently connected with that Amsa (Do). Similarly, in hexachordal phrases with Ga and Sa[1] as Amsas the note Do, though a Major Third below the Amsa Sa[1], must be made weak as it is a Tritone above the Amsa Ga, and the adjacent note Pa must be made strong and prominently connected with that Amsa (Ga). Much confusion has been created in Rāgas based on this Scale owing to failure in taking these necessary precautions. Notable examples are Modern Bhairava and Rāmakali. It should be carefully borne in mind that a Rāga is apt to lapse into a different Rāga and become hybrid if a Tāna concluding with a note which is not an Amsa of that Rāga is used in it as a Characteristic Phrase. For instance, modern Bhairava is often found to lapse into Rāmakali when musicians use Pa as the concluding note of its ascending Characteristic Phrase. That phrase must conclude with the Amsa Do of the Rāga.

The Melas used in Rāgas of Secondary Scales dealt with below are : Ro-Do, Ro-Do-No and Go-Mi-No.

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50. PILOO.

(Sec. II, 4 – Go-Mi-No (18) Mela.)

Piloo is an elegant popular Rāga, which is usually sung in the light Thumri style. It is found to be based on Go-Do Mela. This Mela stands for the first Mode of Secondary Second Scale. But, as the Mode-octove in which it ought to be sung starts from Ma_1 of the lower octove, the correct Mode is the Fourth Mode of that Scale[1]. The proper Mode-octove with Sa as the

1. The compositions of Piloo given in K. P. M. III, are based on Go-Do Mela and start with Pa_1 of the lower octave. The correct Mela of these songs is, therefore, Ro-Do-No. The

Initial instead of Ma_1 is given below in Just Notation together with the improper Mode-octave :

Proper Mode-octave	Sa Ra Go Mî Pa Dâ No Sa^1 9 5 12 5 9 5 8	Sec.II, 4
Improper Mode-octave	Ma_1 Pa_1 Do_1 Na_1 Sa Ra Go Ma	

The Amsas are Ra and Pa in the former form, while those of the latter are Sa and Pa. The sixth and eighth notes are false Thirds to each other. The correct Mela-Signature of this Rāga is Go-Mi-No.

Lakshanas :

(1). **Grāma**—Gauna Dvitîya.

(2). **Murchhanā**—Charturthî.

(3). **Amsas**—Ra [Pa_1,] and Pa [Sa].

(4). **Varjita Svara**—Dâ [Ra] in ascent to $Sā^1$ [Ma] from Pa [Sa].

(5). **Nyāsa**—Pa [Sa].

(6). **Apanyāsa**—Ra [Pa_1].

(7). **Vishishta Tānas :**

Nyāsa Tāna—Ra Go Sa Ra Mî Pa [Pa_1 Do_1 Ma_1 Pa_1 Na_1 Sa].

Upānta Tāna—Pa No Dâ Pa Mî Pa Go Ra [Sa Go Ra Sa Na_1 Sa Do_1 Pa].

The Nyāsa Tāna is based on Tetrachordal Cadence-Norm No. 10(b)—Ra Mî Pa.

Piloo is a night Rāga.

songs of Poet Tagore in Rāga Piloo are composed in this Mela. The starting note in his songs is, however, M_1 of the lower octave. The correct Mela-Signature of the Mode used in these songs is, therefore, Go-Mi-No. This Mode appears to be used in Bengal for this Rāga. The character of the Rāga is, we think, best expressed in this Mode. We have, therefore, taken Go-Mi-No to be the proper Signature for the Mela which is to be used in this Rāga. Go-Do Mela, which is used in the compositions of K.P.M., III, is not included in the ten Melas of Bhatkhande. It is not clear why he puts it in Kāfi (No-Go) Mela.

Illustration :

Rāga—Piloo.

Tāla—Tritāla.

Āsthāyî :

{ 0 P: No: Dâ: No: | P: Mî.P. Go: R: |
Pi - yā vi - - na ji - - yā··· mo - - ra

0 R.Go. S: R: Mî: * P: —: —: P: }
dha - - ra - ta nā dhî - - - - - - - r

0 P: Dâ: Mî: P: Dâ: —: No: Dâ:
su - na - - ri sa - - khi····· kā - - he

0 No: R^1: No: Dâ: + P: —: —: P: |
ka - - run ta - - da - - bî - - - - - - - - r

Antarā :

0 P: P: No: No: | S^1: S^1: R^1: R^1: 0 R^1: Go^1: S^1: R^1: |
Ni - sa di - - na pa - - la chhi - na ka - - la na pa -

+ No: No: Dâ: P: | 0 P: No: Dâ: No:
-ra - - ta ji - - yā pi - - yā vi - - na

Mî: P: Go: R: 0 S: R: Mî: Mî: ‖
a - - - ba to..... ra - he nā sa - -

+ P: —: —: P: |
-rî - - - - - - - r.

This song is an adaptation of the composition given in K. P. M.. III, 616, written in the proper Mode with Sa as the Mode-Initial. Pa_1 is the Mela-Initial of the song in K. P. M. It should be Ma_1, which has been substituted by Sa, the proper Initial for all Melas.

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51. BHAIRAVA (MODERN).

[Sec. II, 5—Ro-Do-No (19) Mela.]

We have pointed out while dealing with the Rāga, which we have called Ādi Bhairava, that Bhairava, as it is sung at present, lacks the sublimity, which has been traditionally ascribed to that Rāga. We have also seen that the original

Rāga was pentatonic and based on one of the two best Primary Scales and that modern Rāga is full and based on a Secondary Scale, which was unknown to ancient India. This Rāga is believed by most of modern musicians to be based on Ro-Do Mela, which is called Bhairava Mela[2]. This Mela stands for the First Mode of Secondary Fifth Scale, which is a composite Scale made up of two distinct but quite similar tetrachords. A tetrachordal Scale lacks the bicentric character of all other Scales. The two component tetrachords, which are themselves bicentric, are connected with each other by a common central note. The notes of this Scale are given below in Just Notation :

Sa	Rŏ	Ga	Ma	Pa	Do	Na	Sa[1]—Sec. V, I
5	12	5	9	5	12	5	

The two constituent tetrachords, which are marked by braces below, will be found to be exactly similar. The connecting link of the two tetrachords is Sa, which is a Tonic common to both.

It appears that the pentatonic Mode of the original Rāga has been transformed by modern musicians into the full Mode, shown above. This transformation of a transilient Mode into a full one is attributable to the tendency of Kheyal singers to

2. This Mela is not called Bhairava by any theorist ancient or medieval, of either the nothern or the southern school. Lochana Pandita and Hridoy Nārāyan call it Gaurî. Shuddha Bhairava, one of the six Rāgas mentioned by Vitthala in Rāga-mālā, and Bhairava, a son of that Rāga, are based on Ro-Go-Do-No and Ro-Do-No Melas respectively. The author of the same name calls Ro-Do Mela by the name Gauḍî in Rāga-manjarî. Pundarîka in his Sadrāga-chandrodaya calls that Mela by the name Mālava Gauḍa. This name is used for the Mela also by Rāmāmātya in his Svaramela-Kalānidhi and by Somanātha in his Rāga-vibodha. Venkata Makhi calls Ro-Do Mela Gaula (pronounced almost like Gauḍa) Mela in his Chaturdandi-prakāshikā. It will thus be seen that none of the medieval authors use the name Bhairava for Ro-Do Mela. The name used by them is Gaula or Gauḍa or the feminine form Gauḍî or Gaurî. In fact none of the aforesaid writers mention any Mela of the name Bhairava, except Somanātha. But, this is not Ro-Do but Ro-Do-No Mela, which appears to be the correct Mela for modern Bhairava.

fill up the gaps of transilient Modes for the sake of facility in improvising Tānas. The second and the sixth notes of the original Bhairava were Ro and Do. These notes also belonged to Gauri Mela, mentioned by Lochana pandita and to Mālava-Gauḍa or Gaula Mela mentioned by southern theorists. It appears that the omitted third and seventh notes of the original Bhairava, being unknown, were mistakenly supposed to be the same as those of Gaurî or Mālava-Gauḍa Mela, viz, Ga and Na. The two Modes were, thus, identified with each other and Bhairava came to be sung in Gaurî or Mālava-Gauḍa Mela. Subsequently Gaurî Mela came to be called Bhairava.

This change of basis totally altered the character of the original Rāga. The ancient sublime and majestic Rāga was converted into a light and elegant Rāga. The sweet tune of "Jāgo mohana pyāre" is quite appropriate for the beautiful child Deity, but completely incapable of expressing the devotion due to the sublime figure of the great God Shiva. Rāga Bhairava, as it is sung in Ro-Do Mela by most musicians, is indistinguishable from Rāga Rāmakali.

There is another variety of Rāga Bhairava, which is based on Ro-Do-No Mela. This is the Mela which is called by the name "Bhairava" by the only medieval theorist Somanatha. This variety is called Shiva-mata or Shiva Bhairava. Most of the classical compositions attributed to the great masters are based on this Mela.

We have seen that the omitted notes of Ādi Bhairava, which is based on the Fifth Mode of Primary Fourth Scale, are Go and No. In the modern variety known as Shiva-mata Bhairava the coroesponding notes are Ga and No. In all the Dhrupad songs given in Sangîta Manjarî and also in some songs given in Bhatkhande's Kramika Pustaka Malika these two notes are used obliquely. The Mela used in them is, therefore, Ro-Do-No. The variety of Bhairava Rāga, which is sung by most kheyāl singers at present, is based on Ro-Do Mela in its full form. The use of the note Na both in ascent and in descent of this variety not only destroys the real character of the Rāga but also makes

it indistinguishable from Rāga Rāmakali.[3] This note is dissonant to all the three notes Sa, Ma and Do, which are universally admitted to be the central notes of Rāga Bhairava. It can be used in Rāmakali, because it is Major Third above Pa, which is one of the central notes of the Rāga. But, it cannot be used in Rāga Bhairava and must be replaced by Nŏ, which is Perfect Fourth above the Amsa Ma. Rāga Bhairava cannot, therefore, be based on Ro-Do Mela. The only Mela proper for modern Bhairava is Ro-Do-No Mela, which represents the Fifth Mode of Secondary Second Scale.

In using the two omissible notes of the Mode it must be remembered that the character of Rāga Bhairava can be preserved only by keeping the Major Thirds Rŏ-Ma and Do-Sa[1] always open.

The notes of this Mode, which is used in Bhairava by composers of classical Dhrupad songs are given below in Just Notation :

*			*				
Sa	Rŏ	(Ga)	Ma	Pa	Do	[Nŏ]	Sa[1] —Sec. II, 5
5	12	5	9	5	8	9	

The omissible notes are shown within brackets. The notes making false Third are marked by braces overhead. This Mode differs from the Fifth Mode of Primary Fourth Scale, on which Ādi Bhairava is based, in its third note only. The Amsas are Sa and Ma in both. Do is used as an Amsa in the ascending Characteristic Phrase of both.

3. Bhatkhande gives in H.S.P. II (pp 226-228) an interesting description of his conversation with an old famous instrumentalist of Jaipur. Questioned about the distinction between Bhairava and Rāmakali the old musician asked his son to play both the Rāgas. Bhatkhande could not make out any distinction between the two tunes except that the player paused on Pa frequently while playing Rāmakali. The old artist tried his best to explain the difference between the two Rāgas and ultimately confessed candidly that his master never explained to him the difference between the two Rāgas and stated that he was not sure whether the explanation given by him was correct or not. Bhatkhande was evidently not convinced by the explanation and was himself doubtful about any real distinction between the two Rāgas, as sung before him.

Lakshanas :

(1). **Grāma**—Gauna Dvitîya.
(2). **Murcchanā**—Panchamî.
(3). **Amsas**—Sa and Ma.
(4). **Varjita Svaras**—Ga and Nŏ which are used obliquely.
(5). **Nyāsa**—Sa.
(6). **Apanyāsa**—Do.
(7) **Vishishta Tānas :**

Nyāsa Tāna—Ma Pa Ga Ma Rŏ Sa.
Upānta Tāna—Sa Rŏ Ma Pa Do
or, Sa Rŏ Ma Nŏ Do.

The Nyāsa Tāna is based on Tetrachordal Cadence-Norm No. 13(e)—Ma Rŏ Sa.

Bhairava is a typical morning Rāga.

Shivamata Bhairava is sometimes found to be based on No-Go-Do-Ro Mela, which is the same as that on which Ādi Bhairava is based. In this variety the omitted notes are Go and No, which are used obliquely. Very few compositions of this variety are to be met with.[4]

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52. JOGIYĀ.

[Sec. II, 5—Ro-Do-No (19) Mela.]
or
[Prim. IV, 5—Ro-Go-Do-No (5) Mela.]

Jogiyā is a Rāga of solemn character, usually sung by Dhrupad singers. It is essentially a pentatonic Rāga. As its secod and sixth notes are Ro and Do, and its third and seventh notes are usually omitted, it is supposed to be based on Ro-Do Mela. But as its omitted third note may be either Ga or Go, and the note No may be used obliquely as the

4. Only two compositions of this variety are to be found in K.P.M., V, pages 298 and 299.

seventh note, it must be considered to be based either on Ro-Do-No or on Ro-Go-Do-No Mela. The Amsas are Sa and Ma. This Rāga is, therefore, based either on the Fifth Mode of Secondary Second Scale or on the Fifth Mode of Primary Fourth Scale. It is, thus, very much akin to Rāga Bhairava, which is also based on these Modes. Jogiyā cannot be based on Ro-Do Mela, because the note Na, which belongs to this Mela is unrelated to both the Amsas of this Rāga (Sa and Ma).

The notes of the Fifth Mode of Secondary Second Scale, on which this Rāga is based, are given below in Just Notation :

*			*					
Sa	Rŏ	(Ga)	Ma	Pa	Do	(Nŏ)	Sa	—Sec. II, 5
5	12	5	9	5	8	9		

If Go be taken to be the omitted third note, the Mode would be the Fifth Mode of Primary Fourth Scale, on which Ādi Bhairava is based. Though both the Rāgas are based on the same pentatonic form of these Modes, the Penultimate Phrase of Bhairava is hexachordal and that of Jogiyā is tetrachordal.

Lakshanas :

(1). **Grāma**—Gauna Dvitîya or Mukhya Chaturtha.
(2). **Murchhanā**—Panchamî.
(3). **Amsas**—Sa and Ma.
(4). **Varjita Svaras**—Ga or Go and Nŏ, of which Nŏ can be used obliquely.
(5). **Nyāsa**—Sa.
(6). **Apanyāsa**—Ma.
(7). **Vishishta Tānas** :

Nyāsa Tāna—Ma Pa Ma Rŏ Sa.

Upānta Tāna—Sa Rŏ Ma Pa Do Pa Ma.

Puraka Tānas : (1). Ma Pa Do Sa^1.
(2). Sa^1 Do Nŏ Ma.

The Nyāsa Tāna of Jogiyā is, like that of Bhairava, based on Tetrachordal Cadence-Norm No 13 (c)—Ma Rŏ Sa, and is like-wise a morning Rāga.

Illustration :

Rāga—Jogiyā.

Tāla—Chautāla.

Āsthāyî :

S: Rŏ: | M: M: | P: —: | Do: —: | P.Do. P: |
A - - khi - la gu - na - na bhā - - - - - - - āndā -

M: - M: P: | M: Rŏ | S: —: | Rŏ: M:
-ra . . ra - cha - ta sri - shti..... su - - - -

P: P: | Do: -: || S¹: —: | Do: Nŏ: | M: —:
ra - - ja - na.. ra.....

M: P: | M: Rŏ: S: —: |
ka - - - - ra - tā - - ra.....

Antarā :

M: M: P: P: | Do: Do: | S¹: —: | Rŏ¹: Rŏ¹: |
sa - ka - la gu - na - na - - ko..... ā - - - dhā -

S¹: —: | Rŏ¹: —: | M¹: Rŏ¹: | —: S¹: | Rŏ¹: S¹:
ra..... dā - - - - - - sa tā - - - - - - pa bha - - nja -

S¹: Do: | —: P: || Do: —: | S¹: S¹: | Do: —: |
-na hā - - - - - ra mā - - - - - yā - - pa - ta.....

Do: Nŏ: | M: Rŏ: | S: —: |
ja - - ga - - ta - - pa - - ta.....

53. RĀMAKALI.

[Sec. V, 1—Ro-Do (29) Mela.]

Rāmakali is a beautiful morning Rāga and very popular. It is based on Ro-Do Mela. This Mela represents the First Mode of Secondary Fifth Scale. As this Scale is tetrachordal, the notes Sa and Pa are to be treated as Amsas in ascent and Sa and Ma in descent. Rŏ, which is a Tritone below Pa is, therefore, usually found to be omitted in ascent. Practically the Mode used in ascent is, thus, the First Mode of Seconday Third Scale. The notes Sa and Ma being treated as Amsas in descent, Na, which is a Tritone above Ma, has to be omitted when progression has to be made from Sa¹ to Ma. The Mode then

practically becomes the Fifth Mode of Secondary Second Scale, the omitted note being in reality Nŏ, the Fourth above the Amsa Ma. This tetrachordal Scale is, thus, a combination of two Secondary Scales, of which one is used in ascent and the other in descent. The notes of the First Mode of Secondary Fifth Scale are given below in Just Notation :

*Sa Rŏ Ga +Ma +Pa Do Na *Sa¹—Sec. V, I
5 12 5 9 5 12 5

The component Scales are :

In ascent :

*Sa [Ra] Ga Ma *Pa Do Na Sa¹—Sec. III, I
9 8 5 9 5 12 5

In descent :

Sa Rŏ Ga *Ma Pa Do [Nŏ] *Sa¹—Sec. II, 5
5 12 5 9 5 8 9

In the composite Scale the note Ra of the ascending Scale and the note Nŏ of the descending Scale are omitted.

The Characteristic Phrases of Rāmakali are situated in the lower part of the Scale. The ascending phrase starts with Sa and concludes with Pa, omitting Rŏ ; and the descending phrase starts with Ma and concludes with Sa.

Lakshanas :

(1). **Grāma**—Gauna Panchama.

(2). **Murchhanā**—Prathamā.

(3). **Amsas**—Sa and Pa in ascent and Sa and Ma in descent.

(4). **Varjita Svaras**—Rŏ in ascent and Na in descent.

(5). **Nyāsa**—Sa.

(6). **Apanyāsa**—Pa.

(7). **Vishishta Tānas :**

Nyāsa Tāna—Ma Ga Rŏ Sa.

Upānta Tāna—Sa Ga Ma Pa (Na) Do Pa.

The Nyāsa Tāna is based on Tetrachordal Cadence-Norm No. 13 (e)-Ma Rŏ Sa.

Rāmakali is a morning Rāga.

54. KALINGADĀ.

[Sec. V, I—Ro-Do (29) Mela.]
or
[Sec. III, I—Do (22) Mela.]

Kalingadā is a beautiful Rāga capable of expressing deep emotion and pathos. But, it appears to have been rather neglected and counted amongst Rāgas of the lighter type. This neglect seems to be mainly due to the fact that its character has been rather obscured by the worng use of Pa as its Apanyāsa. As a hexachordal Rāga, like Bhairava, it ought to be treated as a Rāga of lofty character. Its hexachordal Characteristic Phrases are placed in the upper part of the Scale, while these of Bhairava are placed in the lower part. Its Amsas are Ga and Sa[1], while those of Bhairava are Sa and Do. Its Mela is Ro-Do, which is wrongly called Bhairava Mela. The notes used in it are given below in Just Notation :

Sa	[Rŏ]	Ga	Ma	Pa	Do	Na	Sa[1]	—Sec. V, I
5	12	5	9	5	12	5		

The notes Ga and Sa[1] are marked as Amsas, as the Characteristic Phrases of the Rāga start and conclude with either of these notes. The note Rŏ, which is unrelated to either of these notes, must be omitted ; and the Scale must be treated as hexachordal. The note Do is a Major Third below the Amsa Sa[1]. But, as it is a Tritone above the Amsa Ga, it must be made weak in descent and the adjacent note Pa must be made strong while proceeding to the concluding Amsa Ga. No difficulty is felt in ascent as Do is consonant to the concluding Amsa Sa[1].

Lakshanas :

(1). **Grāma**—Gauna Panchama.
(2). **Murchhanā**—Prathamā.
(3). **Amsas**—Ga and Sa[1].
(4). **Varjita Svara**—Rŏ.

(5). **Nyāsa**—Ga.

(6). **Apanyāsa**—Sa^1.

(7). **Vishishta Tānas** :

Nyāsa Tāna—Sa^1 Na Do Pa Pa Do Pa Ma Ga.

Upānta Tāna—Ga Ma Pa Do Na Sa^1.

Puraka Tāna—Sa Ma Ga.

The Nyāsa Tāna is based on Hexachordal Cadence-Norm No. 25 (a)-Sa^1 Ma Ga.

The basis of this Rāga may be taken to be the First Mode of Secondary Third Scale also, as the omitted note may be taken to be Ra, which is Fourth below Pa, an Amsa of the Scale. The Mela would, then, be Do Mela.

Kalingadā is a morning Rāga.

Illustration :

Rāga—Kalingadā

Tāla—Tritāla.

Āsthāyî :

$\overset{+}{S}^1$: S^1: S^1: N: $\overset{0}{D}$o: —: P: —: | $\overset{/}{M}$: —: P: Do: |
Gā - ga - - ri main ka - - e - - se..... le..... gha - ra

$\overset{0}{M}$: —: G: —: | $\overset{*}{G}$: S: G: G: | $\overset{0}{M}$: M: M: G: |
jā - - - - un....., bā - - - - ta cha - la - - ta mo - he

$\overset{/}{G}$: M: P: Do: | $\overset{0}{N}$: —: S: —: ||
ro - ka - ta ka - - nhā - - - - i.....

Antarā :

$\overset{+}{P}$: M: P: Do: | $\overset{0}{N}$: —: S^1: S^1: | $\overset{/}{R}\delta^1$: $R\delta^1$: $R\delta^1$: S^1: |
Sā - - - - sa bu - - ri..... mo - ri na - - na - - nd ha -

$\overset{0}{N}$: —: S^1: —: || $\overset{+}{S}^1$: —: —: G^1: | $\overset{0}{M}^1$: G^1: $R\delta^1$: S^1:
thî - - - - lî..... de - - - - - - - va - - rā..... ka - - re

$\overset{/}{N}$: Do: —: —: | $\overset{0}{N}$: N: S^1: —: ||
la - - ra - - - - - - - - ka - i - - yān.....

This song is an adaptation of the composition given in K. P. M., III, 340.

II. RĀGAS OF CHROMATIC SCALES.

(a). Notable traits of Chromatic Scales :

Some of the great and beautiful Rāgas of Hindusthāni Music are based on Chromatic Scales. These Scales are peculiar to India constructed on principles quite different from those underlying all other Scales used in India or abroad. Two peculiar intervals are used between consecutive notes of these Scales. One of them is equivalent to the Minor Third and the other is the small interval of three Anushrutis, which is half of the Major Semitone of six Anushrutis. This latter interval has been called Small Semitone. In an equally tempered Scale of twelve Semitones all the three kinds of Semitones are represented by an interval consisting of about four Anushrutis and a half. The Small Semitone is, therefore, very much out of tune in this Semitonic Scale. It cannot be correctly expressed by the notes used in the Mela system, which is based on this Scale. For instance, the note Si used in Chromatic Scales, which is three Anushrutis above Sa, has to be represented by the note Ro, which in Primary Scales represents a note five Anushrutis above Sa. Three different kinds of Tetrachords, of which one is Secondary and the other two Chromatic, have to be expressed by the same notes. As a consequence not only a Chromatic Tetrachord is apt to be confounded with a Secondary one ; but also one Chromatic Tetrachord is apt to be confounded with another. How such Tetrachords are to be distinguished from each other have been shown in the fourteenth chapter. It will be seen below how Rāga Pāschātya Vasanta is confounded with Rāga Paraja owing to inability to distinguish between two Chromatic Tetrachords.

Another serious difficulty regarding Chromatic Rāgas is that there are some Modes of Chromatic Scales which cannot be expressed by means of the notes used in the existing Mela system of northern India. Most of these can be properly expressed by means of the notes used in the Mela system of southern India, which is based on a Scale of Origin that is

itself a Chromatic Scale. These Scales were unknown in ancient India and are peculiar to southern India, being evidently of Dravidian origin. Four peculiar notes are used in the southern system, of which two are double flats and two sharps of corresponding Shuddha notes of northern India. Shuddha Ga and Shuddha Ni of southern India are double flats of Shuddha Ga and Shuddha Ni respectively of northern India. In actual position in the Scale the former two notes are identical with Shuddha Ri and Shuddha Dha of northern India. Shuddha Ri and Shuddha Dha of southern India are the same as flat Ri and flat Dha of northern India. The Shuddha Scale of southern India called Mukhārî (ancient) or Kanakāngî (modern) may be expressed as follows by notes of Just Nstation :

Kanakāngî—*Sa Rŏ Rā *Ma Pa Do Da Sa¹
5 3 14 9 5 3 14

—Chrom. B, V, 5.

Rāga Sohinî of Hindusthânî music is based on this Mode. Shuddha Ga and Shuddha Ni of southern India are in reality Minor Thirds below Ma and Sa¹ respectively. As two notes of the same denomination are not allowed in the Mela System, the notes Rā and Da of Just Notation are to be treated as double flats of Ga and Na respectively. They are to be written as Goo and Noo. In the Mela system of northen India the aforesaid Mode has, therefore, to be written as :

*Sa Ro Goo *Ma Pa Do Noo Sa¹

The Signature of this Mela is Ro-Goo-Do-Noo. As this Mela does not exist in the Mela system of northern India, Rāga Sohinî is clumsily expressed by the notes of Ro-Mi Mela, starting with Ga as Initial of the Mode-octave, omitting Pa and adding Shuddha Ma. The Mode-octave used stands thus :

*Ga (Ma) Mi *Da Na Sa¹ Ro¹ Ga¹
5 3 14 9 5 3 14

Here the note Ro stands for Si of Just Notation.

The other two peculiar notes of southern India are Shat-Shruti Ri and Shat-Shruti Dha. They are sharps of Shuddha

Ri and Shuddha Dha of northern India and are in position identical with flat Ga and flat Ni. They are used in Mela Chalanāta, which is converse of Kanakāngi. In Just Notation the notes of this Mela are :

Chalanāta—*Sa Go Ga Ma *Pa No Na Sa[1]
14 3 5 9 14 3 5

—Chrom. A, V, 1

The second and sixth notes are to be written as Ri and Di in the Mela system of northern India. This Mela is to be written as follows :

*Sa Ri Ga Ma *Pa Di Na Sa[1]

The notes Ri and Di, which are to be introduced in this system are in reality Minor Thirds above Sa and Pa respectively. This Mela, which has Ri-Di for its Signature, has not been found to be used in any Rāga of northern India. The note Ri is used in Pāschatya Vasanta.

The notes of the Southern System are not, however, sufficient for expressing all Modes of Chromatic Scales. The notes of the flat and the sharp systems of northern India can be altered in order to have new notes required for all Modes of Chromatic Scales. Such alteration is not possible in the Southern System. Two other new notes which have to be introduced into the Northern System in order to express the existing Rāgas are Po and Pi. It will be seen from what has been stated above that it is almost impossible to express correctly Chromatic Rāgas by the twelve notes of the tempered Scale. The difficulty regarding Amsas found in Rāgas of Primary Scales never arises in Ragas of Chromatic Scales, because there is no similarity in them as found in Primary Scales.

(b). Importance of the Mediant in Chromatic Scales : In ancient Indian music every Scale was considered to have three Amsas. The three Pushkaras (acompanying drums) were tuned to these Amsas. There were three kinds of Mārjanā (tuning), called Māyurî, Ardha-mayurî and Karmāravi, for the three Scales generally used, the Madhyama, the Shadja and the Gāndhāra respectively, which are equivalent to the First,

the Second and the Fourth Primary Scalea. The three notes used in each of these tunings are analogous to the three notes called, the Tonic, the Dominant and the Mediant, used in the final chord of European harmonic music. The Tonic-character of the three notes of the final chords of the Major and Minor Scales of Europe, equivalent to the Primary First and Fourth Scales, is undoubted, as each of them has a Pentad. But, there is another equally important criterion of a Tonic, viz., its capability of accounting for the existence in a Scale of those notes which another note of the Scale cannot account for. This is the essence of the bicentric structure of Scales. This theory applies equally to composite Scales and to the Unitary Scales included in them. All composite Scales are composed of two Unitary Scales, one of which is Pentachordal and the other Tetrachordal. Both of them have the same two notes as their Tonics, which are the Lower and the Upper Tonics of the composite Scale. These composite Scales include other Unitary Scales which are either Hexachordal or Trichordal. The Mediant of the composite Scale is one of the Tonics of these Unitary Scales, the other Tonic being either the Lower or the Upper Tonic of the composite Scale. The Mediant should, under these circumstances, be considered as a true Third Tonic of the composite Scale and called its Middle Tonic.

In the well-known Rāga Bageshrî, which is based on Primary Second Scale, equivalent to the ancient Shadja Grāma, the Mediant Dha is used as the Final Note. Similar use of the Mediant is also found in other Rāgas. There is, therefore, justification for the ancient theory of three Amsas.

The Tonic-character of the Mediant comes into play only when one of the two notes adjacent to it is omitted. In other words, the Middle Tonic acquires importance only in Hexachordal and Trichordal Scales. It is one of the two extreme notes of these Scales which account for all their notes. One of the two Characteristic Phrases of most chromatic Rāgas is based on either of these two Unitary Scales. The Mediant is, therefore, of especial importance in Rāgas based on Chromatic Scales. This is the natural consequence of the peculiar structure of these

Scales. The double Thirds above or below their Tonics distinguish them from all other Scales. Of the two notes making double Thirds above or below the Lower or the Upper Tonic, that which makes a Major Third with that Tonic acquires Tonic-character, if it forms with that Tonic either a perfect Hexachord or a perfect Trichord.

A. GROUP A.

55. RĀMPURI PILOO.

[Chrom. A, I, 6—Go-Mi-Do-No (41) Mela.]

A Rāga is sung by musicians of Rāmpur, which is called by them Piloo. We have named this Rāga Rāmpuri Piloo in order to distinguish it from another Piloo, which is widely known in Northern India. The common Piloo is, as stated above, based on the Secondary Mela Go-Mi-No, but customarily written in Mela Go-Do. Rāmpuri Piloo is, on the other hand, based on the Chromatic Mela Go-Mi-Do-No and customarily written in Mela Ro-Go-Do. This Mela represents the Sixth Mode of Chromatic First Scale, Group A. The notes customarily used are those of Mode Number 3b of that Scale which are :

Sa Rŏ *Go Ma Pa *Do So Sa¹—Chrom. A, I, 3b

The note So is written as Na. But, this Rāga is in reality based on the Sixth Mode of that Scale, as it ought to start from Ma_1 of the lower octave.[5] The correct Mode octave for this Rāga is given below in Just Notation together with the customary Mode octave.

Correct Mode octave :

Sa Ra *Go Po Pa Do *No Sa¹—Chrom. A, I, 6
9 5 14 3 5 9 8

5. Examples of this Rāga given in K. P. M. III are based on Ro-Go-Do Mela and start from Pa_1 of the lower octave. This makes the Rāga almost indistinguishable from Pāschātya Lalita. The character of this Rāga depends on Ma_1 as the Mode-Initial, as in the common Piloo written in Go-Do Mela.

Customary Mode octave :

Ma_1 Pa_1 $\overset{*}{Do}_1$ Na_1 Sa Ro $\overset{*}{Go}$ Ma

The fourth note Po is to be written as Mi in Semitonic Notation. The fourth note of common Piloo is, howver, the true sharp Fourth. The distinction between the two Modes are shown below.

Rampuri Piloo :

Sa Ra $\overset{*}{Go}$ <u>Po</u> Pa <u>Do</u> $\overset{*}{No}$ Sa^1

Common Piloo :

Sa $\overset{*}{Ra}$ Go <u>Mî</u> Pa <u>Dâ</u> No Sa

The distinctive notes are underlined. It will be observed that alteration of the sixth note changes the character of the Scale.

The Mela-Signature of Rāmpuri Piloo is to be written as Go-Mi-Do-No in which Mi stands for Po. The two Rāgas are called by a common name owing to similarity of movements of the notes and identity of their Nyāsa and Apanyāsa.

Lakshanas :

(1). **Grāma**—Sālanga Prathama, Varga Ka.
(2). **Murchhanā**—Shashthî.
(3). **Varjita Svara**—Po in descent.
(4). **Amsas**—Go, No [Do_1, Go].
(5). **Nyāsa**—Pa [Sa].
(6). **Apanyāsa**—Ra [Pa_1].
(7). **Vishishta Tānas :**

Nyāsa Tāna—Go Ra Sa Go Po Pa
[Do_1 Pa_1 Ma_1 Do_1 Na_1 Sa].

Upānta Tāna—Pa Go Ra
[Sa Do_1 Pa_1].

The core of the final Characteristic Phrase is the Trichordal Chromatic Cadence-Norm No 1 (c)—Go Po Pa. The note Go, which is the Lower Tonic, is the Vadî and Po is the Upānta note.

The Antarā starts from the Mediant Pa and may extend upto the Lower Tonic Go^1 in the higher octave. The Upper Tonic No is to be made strong in it. Do is omitted in Antarā in ascent.

Rāmpuri Piloo is a night Rāga.

Illustration :

Rāga—Rāmpuri Piloo.

Tāla—Dhāmār.

Āsthāyî :

+ Go: Go: R: | 0 Go: R: | / S: S: | / Go: R: Go: |
A - - - e - - si ra - - ng dā - ro mo - - - - - ri

0 Po: —: | / P: —: | * P: No: No: | 0 Do: —: | / P: —:
gu - - i - - yān..... sai - yān - ke ra - nga - men...

/ P: Po: P: | 0 Go: —: | / R: —: ||
ra - nga ra - he - - - - - ri.....

Antarā :

+ P: Po: P: | 0 No: —: | / No: —: | / Go^1: —: R^1: |
Pi - yā ha - mā - - - - - rā..... ma - - en pi -

0 S^1: —: | / R^1: —: | + Go^1: R^1: No: | 0 Do: —: | / P: —: |
-yā - - - - ki..... sa - - ja - - ni e..... ka - hi

/ P: Po: P: | 0 Go: —: | / R: —: ||
ra - onga cha - hu - - - - ri.....

This song is an adaptation of the composition given in K. P. M., III, 635. It has been written in the proper Mode with Sa as the Mode-Initial. In the aforesaid book the Mode-Initial is Pa_1. The corrrect Mode-Initial should be Ma_1, which has been substituted by Sa, the proper Mode-Initial for all Melas.

56. MULTĀNI.

[Chrom. A, V, 3a—Ro-Goo-Mo-Do-Noo (65) Mela.]

Multānî is a popular afternoon Rāga very much similar in structure to Darbārî Todî. Both are based on the same Scale,

viz., Chromatic Fifth, Group A, the only difference being that the Mode-octave of Multānî starts a Small Semitone (3 Anushrutis) below Darbārî Todî. The Mode number of the former is 3a and that of the latter 3b. The Characteristic Phrases of both the Rāgas are situated in the Purvānga. The afternoon character of Multānî is produced by the Small Semitone with which its descending Final Phrase concludes, while the morning character of Darbārî Todî is assured by the Minor Semitone (5 Anushrutis) with which its descending Final Phrase ends. Their difference can be brought out cearly by taking as the Mode-Initial of Multānî the note So (Na), which is a Small Semitone lower than Sa, the Mode-Initial of Darbārî Todî. If Sa is substituted for So (Na), the notes of Multānî will stand as follows in Just Notation :

Correct Mode-octave

Sa	Si	Ră	*Ga	Pa	Pi	*Da	Sa[1]	—Chrom. A, V, 3a
3	5	9	14	3	5	14		

Customary Mode-octave

So_1	Sa	Ro	*Go	Po	Pa	Do	So

The notes of the customary form are, it will be observed, each raised by only a Small Semitone, but their consonant letter-names are left unaltered, only their vowel-endings being changed. The Signature of the Mela, which would represent the correct Mode, would be Ro-Goo-Mo-Do-Noo, in which the notes Goo, Mo Do and Noo, stand for Ră, Ga Pi and Da respectively.

Lakshanas :

(1). **Grāma**—Sālanga Panchama, Varga Ka.
(2). **Murchhanā**—Tritîyā, Ka.
(3). **Amsas**—Ga [Go] and Da [Do].
(4). **Varjita Svaras**—Ră [Rŏ] in ascent and Pa [Po] in descent.
(5). **Nyāsa**—Sa [So_1].
(6). **Apanyâsa**—Da [Do].

(7). **Vishishta Tānas :**

Nyāsa Tāna—Da Pa Ga Rā Si Sa
[Do Po Go Rŏ Sa So_1].

Upānta Tāna—Ga Si Ga Pa Pi Da
[Go Sa Go Po Pa Do].

The Nyāsa Tāna is based on Chromatic Hexachordal Cadence-Norm No. 27 (c)—Da Si Sa. Multāni is an afternoon Râga.

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57. DARBÂRÎ TODÎ.

[Chrom. A, V, 3b—Ro-Go-Mi-Do (66) Mela.]

Darbārî Todî is the foremost and the most popular variety of the Todî group of Rāgas. It is based on Ro-Go-Mi-Do Mela and has Go and Do for its Amsas. This Mela represents the 3b Mode of Chromatic Fifth Scale, Group A. Darbārî Todî or Shuddha Todî, as it is sometimes called, may be said to be the chromatic form of Bilāskhānî Todî, which is based on the Third Mode of Primary First Scale. The former is believed to have been created by Tānasena and the latter by his son Bilās Khān. The Todîs are mostly morning Rāgas, as their Characteristic Phrases are situated in the Purvānga and their Nyāsa Tānas are descending in character and conclude with a Minor Semitone (5 Anushrutis). The notes of Darbārî Todî are as follows in Just Notation :

Sa	Rŏ	*Go	Po	Pa	*Do	So	Sa^1	—Chrom. A, V, 3b.
5	9	14	3	5	14	3		

The notes Po and So are represented by Mi and Na in the Mela system. The interval between the highest two notes of the Mode is a Small Semitone (3 Anushrutis) and not a Minor Semitone (5 Anushrutis).

Lakshanas :

(1). **Grāma**—Sālanga Panchama, Varga Ka.

(2). **Murchhanā**—Tritîyā Kha.

(3). **Amsas**—Go and Do.

(4). **Varjita Svaras**—Po and So in descent.

(5). **Nyāsa**—Sa.

(6). **Apanyāsa**—Do.

(7). **Vishishta Tānas :**

Nyāsa Tāna—Do Pa Go Rŏ Sa

Upānta Tāna—Go Sa Go Po Pa Do

Puraka Tānas : (1). Do So Sa[1],
(2). Sa[1] Do Pa Do.

The Nyāsa Tāna of Darbārî Todî given above is a simple descending phrase based on Hexachordal Cadence-Norm No. 25(c)—Do Rŏ Sa. This phrase is also used as the Nyāsa Tāna of Rāga Bilāskhānî Todî. The Upānta Tāna of Darbārî Todî is an ascending phrase based on two Cadence-Norms combined together, one of which is Chromatic Trichordal No. 1(c)—Go Po Pa—and the other Simple Tetrachordal No. 10(c)—Go Pa Do. Both of these phrases are equally conclusive in character ; and either of them can be taken as the Nyāsa Tāna of the Rāga. This Rāga may, therefore, be treated either as a morning Rāga or as a night Rāga. But, as the feature which distinguishes it from Bilāskhānî Todî is its Chromatic character, the ascending Chromatic Phrase should, properly speaking, be taken as its Nyāsa Tāna. It should, therefore, be treated as a night Rāga, though customarily it is sung in morning.

The relationship that subsists between Darbārî Todî and Bilāskhānî Todî is quite similar to that which subsists between Prāchya Vasanta aud Āyata Hindola. They are based on converse Scales.

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58. SHUDDHA SĀRANGA.

[Chrom. A, V, 4—Gi-Mi-Di (67) Mela.]

Shuddha Sāranga, as it is sung in modern India, is based on an unusual Mela containing both the Madhyamas and both the Nishadas and without Ga and Da. The content of this Mela is the same as that of the ancient Sāranga Mela mentioned by Lochana and almost all other medieval writers. The

modern Shuddha Sāranga is, therefore, naturally identified with the ancient Sāranga, which was a Chromatic Rāga. But, as usually sung at present it is not a Chromatic Rāga and is almost characterless. It is, however, still sung in its ancient form as a Chromatic Rāga by musicians of Kathiawad in western India[6]. There is no reason why this famous ancient Rāga should not regain its popularity. The difficulty felt in singing double Thirds consecutively in an ascending phrase may be overcome by giving prominence to the Major Third, which has the most powerful æsthetic effect in music, and keeping the interval always open. The Minor Third should be taken with the Major Third slightly and obliquely. The notes used in Shuddha Sāranga are given below in Just Notation :

Sa	*Ra	Mâ	Mî	*Pa	No	Na	Sa[1]	—Chrom. A, V, 4
9	14	3	5	14	3	5		

This is the Fourth Mode of Chromatic Fifth Scale, Group A. Like all Rāgas of Sāranga Group, it is devoid of Ga and Da, and has Ra and Pa as its Amsas. The Mela-Signature is Gi-Mi-Di.

Lakshanas :

(1). **Grāma**—Sālanga Panchama, Varga Ka.

(2). **Murchhanā**—Chaturthî.

(3). **Amsas**—Ra and Pa.

(4). **Varjita Svaras**—Ma and No both in ascent and n descent ; they are to be used obliquely with Mi and Na respectively.

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6 This valuable information is provided by Bhatkhande in his H.S.P., Vol. IV. In page 383 he states that while in Kathiawad he heard from a renowned, though quite illiterate, Mahomedan musician of that locality two songs, in one of which both the Ma's and in the other only sharp Ma were used. The musician said that he learnt these songs from his father, who called the former Shuddha Sāranga and the latter Noor Sāranga. Bhatkhande was evidently impressed by the original chromatic character of Shuddha Sāranga sung by the Kathiawad musician. But, unfortunately, no record of these songs were made or published.

(5). **Nyāsa**—Pa.

(6). **Apanyāsa**—Ra.

(7). **Vishishta Tānas :**

Nyāsa Tāna—Ra Mî Mâ Mî Pa.

Upānta Tāna—Pa Na No Na Pa Mâ Mî Ra Sa Ra.

The Nyāsa Tāna is based on Simple Tetrachordal Cadence-Norm No 10(b)—Ra Mî Pa and Chromatic Trichordal Cadence-Norm No. 1(b)—Ra Ma Mî combined together.

The Major Third intervals Ra-Mî and Pa-Na are to be kept open both in ascent and in descent. The Upānta Tāna is essentially Major Hexachordal, as Na is more prominent than No. This Rāga is, therefore, more akin to Noor Sāranga than to Madhmād Sāranga, though it may be considered to be a combination of both these Sārangas. It is sung at noon like other Sārangas.

59. VASANTA, PĀSCHĀTYA.

[Chrom. A, V, 5.—Ri-Pi-No (68) Mela.]

Rāga Vasanta as it is sung in western India, which has been called Pāschātya Vasanta in order to distinguish it from another variety of the Rāga usually sung in eastern India, which has been called Prāchya Vasanta, is said by most musicians of western India to be based on Ro-Mi-Do Mela, having Ga and Na as its Amsas. Rāga Paraja is based on this Mela. The Characteristic Phrases of both these Rāgas are situated in the Uttarānga of the Mode-octave. It is, therefore, extremely difficult to distinguish between compositions of one of them from those of the other unless the difference in the structure of their Charateristic Phrases is clearly understood. This difference is based on the prominence of Do in these phrases of Vasanta and that of Na in those of Paraja. In other words, Do is an Amsa of Vasanta and Na is one of Paraja. The note Ga, which is the second Amsa of Paraja, is dissonant to Amsa Do of Vasanta and must be flattened to Go

in order to make it Perfect Fourth below Do. This note Go is the second Amsa of Rāga Vasanta. It will thus be seen that the two Rāgas are based on two quite different Scales. The confusion between these two Rāgas is due to inability to distinguish two similar tetrachords on account of the defective Semitonic division of the Scale on which the Mela system is based. In this system two notes of different denominations and separated from each other by two Anushrutis are, as seen in the fourteenth chapter, represented by the same note. In the present case the notes are Do and Na, which are in reality Do and So in Vasanta and Pi and Na in Paraja. The notes Do and So of Vasanta require the common consonant note Go, while the notes Pi and Na of Paraja require the common consonant note Ga. Pāschātya Vasanta would, therefore, be based on the Third Mode of Chromatic Fifth Scale, Group A, if Sa is taken as the Mode-Initial according to custom, and not on the Sixth Mode of Chromatic Fifth Scale, Group B, on which Paraja is based. The Signature of its Mela would be Ro-Go-Mi-Do and not Ro-Mi-Do. This Mela is used in Darbāri Todî. Bhatkhande informs us that the Rāga is still sung in this Mela by some 'Seniye' musicians belonging to the *gharānās* of the great Tānasena.[7] This Signature of the Mela of Vasanta

7. Bhatkhande states that Rāgas Vasanta and Paraja are very close to each other in character. This similarity is, according to him, due to, among other things, predominance of Sa and Pa in both. As regards their distinction he states that most of the Tānas of Paraja end with Ni and those of Vasanta with Do. (Vide H. S. P. III, pp. 290 and 291). Tānas of Vasanta, he states, must never end with Ni He further states that the Pakad (Characteristic Phrase) of Paraja as taught to him by his guru is Pa Do Na Do Na Sa Na Do Pa and that a short pause is to be made after sounding Sa of this phrase. (p. 275). This phrase is thus practically divided into two phrases, one ascending and the other descending, viz., (1) Pa Do Na Do Na Sa and (2) Na Do Pa. These two are virtually the Characteristic Phrases of Paraja, as shown in the description of that Rāga. As the starting note of the descending phrase is Na, the last two notes of the phrase must be consonant to it. The note Do is, therefore, in reality Pi, which is Minor Third below Na, and not Major Third below

would be correct if the actual Initial of its Mode-octave were Sa as usual and proper for the Mela system. But, as the first two notes of the Mela, Sa and Ro, are found to be non-essential and Ro[1] of the upper octave to be essential for the Rāga, its Mode-octave must start from the third note. In the Āsthāyî

Sa, to which it is unrelated. The repeated consecutive use of the notes Do and Na in the ascending phrase of Paraja given by Bhatkhande shows that they are consonant to each other and that Do is in reality Pi, the Minor Third below Na, which is admittedly an Amsa of Paraja. The apparent similarity of Paraja and Vasanta is due to the current practice of using the same notes in the Characteristic Phrases of both these Rāgas resulting from the use of a wrong Mode-octave for Vasanta. Their Characteristic Phrases can be differentiated if only they are made to start from correct notes. Bhatkhande points out that Na is a predominant note in Paraja and Do in Vasanta. The descending phrase of Paraja, which starts with Na, therefore, determines the tonality of the Scale of Paraja. The correct form of this phrase is, as seen above, Na Pi Pa. If Do be taken as a central note of Vasanta (instead of Na) its phrases will be found to have converse relationships with those of Paraja. Thus, the ascending phrase of Vasanta, which should start from Do, would take the form Do So Sa[1], in which So, represented by Na in current practice, is Minor Third above Do. This phrase, which is converse of Na Pi Pa, therefore, determines the tonality of the Scale of Vasanta. If we extend this ascending phrase by adding notes, which are Perfect Fourth and Fifth above the central note Do, we get Do So Sa[1] Rŏ[1] Go[1], just as we get the converse descending phrase Na Pi Pa Mî Ga by extending the phrase Na Pi Pa of Paraja downwards. These phrases begin with one Amsa and end with the other of their respective Rāgas. The Amsas of Vasanta are Go and Do, while those of Paraja are Ga and Na. It will thus be seen that Go is a note essential for Rāga Vasanta and that Ga has no place in it. All compositions of Pāschātya Vasanta which have Ga instead of Go must, therefore be considered to be incorrect.

Bhatkhande heard some 'Seniye' musicians belonging to the *gharānā* of Tānasena singing songs of Vasanta with flat Ga. Asked about his authority for doing so, one of them asserted that books were wrong and all and sundry must follow Tānasena. (Ibid. pp. 285 and 286). Bhatkhande does not appear to have been convinced. But, from what has been stated above it will be seen that this audacious 'Seniye' was right and that the correct form of the Rāga was faithfully preserved by these

of two compositions of the Rāga given in K.P.M. (Vol. IV, pp. 369 and 286) .this note will be found to be the starting note of their Mode-octave. The Antarās of these songs rise upto Do[1] of the upper octave. This is quite unusual as it is impossible for most musicians to reach this high note if Sa is tuned to the speaking voice as usual. It would be possible for a musician to take this high note if only the third note be taken to be the Initial of the Mode-octave and tuned to his speaking voice. This must have been the intention of the composers. The Mode-octave must, therefore, be Go to Go[1]. The Mela-Signature is to be altered by taking Sa as the Mode-Initial. The corrected Signature will be Ri-Pi-No. The first two notes of this Signature, which are not allowed in the Mela system, must be introduced in it in order to have the correct Mela for the Rāga. This Mela has to be identified with the Fifth Mode of Chromatic Fifth Scale, Group A and not with the Third Mode of that Scale as stated above. The customary form of the Mela-octave of Vasanta and also its correct form are given below in Semitonic Notation :

Customary form : $\overset{*}{\text{Go}}$ Mi Pa $\overset{*}{\text{Do}}$ Na Sa[1] Ro[1] Go[1]

Correct form : $\overset{*}{\text{Sa}}$ Ri Ga $\overset{*}{\text{Ma}}$ Pi Da No Sa[1]

The Amsas of the correct form are Sa and Ma instead of Go and Do of the customary form. In this form the Antarā can easily rise up to the Amsa Ma[1] of the upper octave corresponding to Do[1] of the customary form. The Mode which is represented by this Mela is shown below in Just Notation :

$\overset{*}{\text{Sa}}$ Go Ga $\overset{*}{\text{Ma}}$ Do Da Nŏ Sa[1] —Chrom. A, V, 5.
14 3 5 14 3 5 9

followers of the great Tānasena. It is interesting to note that Bhatkhande stated authoritatively (prāmānikpane sāngto) that he had very often felt that Ga must be flattened while passing to that note by *meed* from Pa (pp. 288-289). Prompted by a true musical instinct Bhatkhande, thus, appears to have felt the necessity of flat Ga in the Rāga in spite of the teachings of his *gharānā* to the contrary.

Lakshanas :

(1). **Grāma**—Sālanga Panchama, Varga Ka.
(2). **Murchhanā**—Panchamî.
(3). **Amsas**—Sa [Go] and Ma [Do].
(4). **Varjita Svaras**—Go or Ri [Mi] and Do or Pi [Na] in descent.
(5). **Nyāsa**—Da [Sa^1].
(6). **Apanyāsa**—Ma [Do].
(7). **Vishishta Tānas :**

Nyāsa Tāna—Ma Do Da Nŏ Da [Do Na Sa^1 Ro^1 Sa^1].

Upānta Tāna—Da Ma Ga Ma [Sa^1 Do Pa Do].

Notes of the customary form are shown within angular brackets. Na of this form stands for So. The Adhara Amsa Ma [Do] is the Vādî and the Apanyāsa, and the Madhya Svara Da [Sa^1] is the Apavādi and the Nyāsa. The Nyāsa Tāna is chromatic, trichordal, oblique and ascending in character. It may be amplified as :—

(1) Ma Ga Ma Do Da Nă Da ; and
(2) Ma Do Da Nŏ Sa^1 Nŏ Da.

These phrases are used in Pāschātya Lalita in other forms in the Purvānga of the Rāga.

The Puraka Tānas of Pāschātya Vasanta are (1) Sa Go Ga Ma Ga, which is parallel to the Nyāsa Tāna and (2) Ma Ga Ma Do Da Nŏ Sa^1 Nŏ Da.

The Sādhaka Tānas which can be used in the Antarā are (1) Ma Do Da Nŏ Sa^1, (2) Sa^1 Go^1 Ga^1 Ma^1 Ga^1, which is the same as the first Puraka Tāna placed an octave higher and (3) Ma^1 Ga^1 Sa^1 Nŏ Da.

Conversion of the customary form of Pāschatya Vasanta to the correct form given above should be considered to be a necessary reform on account of the following three advantages : (1) it eliminates the possibility of confusion of the Raga with Paraja ; (2) it facilitates the use of high notes of the upper octave to be used in the Antarā ; and (3) it brings out clearly

its similarity with Prachya Vasanta, justifying a common name. The similarity will be seen from the first amplified form of the Nyāsa Tana, if it is compared with the Nyāsa Tāna of Prāchya Vasanta : Ga Ma Da Na Sa[1], which is sometimes made to end with Da, thus: Ga Ma Da Na Sa[1] Na Da. The Nyāsa Tāna of Paschātya Vasanta is based on Chromatic Trichordal Cadence-Norm no. 1 (*d*)—Ma Do Da—and simple Trichordal Cadence-Norm no. 2 (*d*)—Ma Nŏ Da—combined together. It is a night Rāga.

Illustration.

Rāga—Pāschātya Vasanta.

Tāla—Tritāla.

Āsthāyî :

M.G. M: Do: D: | Nŏ: -: D: -: | D: M: M: G:
Na - - - i - - ye va - - - sa - on-ta··· na - yi sa - va

S: Go. Ga. M: G: | M: M: Do: D: | S[1]. Nŏ: -: D:
sa - - khi - - - i - - yā na - yi na - yi tā - - - - - - - na

D: Do: Nŏ: D: | M: -: G: -: |
gā - - - - - va - - ta go - - - - rî·····

Antarā :

M: M: Do: -: | D.Do. D: D: D: || S[1]: -: -: Nŏ
Na - i - - ye ··· baon - - si na - yi da - - - - - - fa

D: Do: Nŏ: D: | D: S[1]: S[1]: S[1]: | G[1]: Go[1]: M[1]: G[1]:
bā - - - - ja - - ta na - o - - - - - la rā - - - - - dhi - kā

M[1]: -: S[1]: S[1]: | Nŏ: -: D: -: |
bhā - - - - na ki - - - sho - - - - rî.....

This song is an adaptation of the composition given in K. P. M., IV, 386, referred to above. The lowest note in it is Ga and the highest Do[1]. We have flattened Ga to Go and substituted Sa for it as the Mode-Initial and altered the other notes accordingly as shown above. Material modifications have been made so as to bring out the spirit of the Rāga. The highest note is made Ma[1], which can be easily sung by all.

60. LALITA, PĀSCHĀTYA.

[Chrom. A, V, 7b—Ro-Po-Do (70) Mela.]

There are two varieties of Lalita, which are similar to each other, but based on different Scales and Modes. The Characteristic Phrases of both of them are situated in the Purvānga and have the same concluding notes, viz., Sa and Ma, the descending phrases ending with Sa and the ascending phrases with Ma. One of these varieties has been named Pāschātya Lalita and the other Prāchya Lalita, as the former is usually sung in western India ahd the latter in eastern India, especially Bengal.

Pāschātya Lalita is said to be based on Ro-Mi-Do Mela. This would imply that Ma is not used in this variety of the Rāga and that Pa is used in it. On the contrary, Ma and Mi are both used in it one after another as substantive notes of the Mode, and Pa is never used. The note Mi of the Mela-Signature should, therefore, be written Po. In fact, in Just Notation this note is really flat Pa and not sharp Ma. The The correct Mela-Signature of the Rāga is, therefore, Ro-Po-Do. Its Amsas are Ro and Do. This Mela represents the Seventh-b Mode of the Fifth Scale of Chromatic A Group. In Just Notation this Mode should be written as follows :

Sa *Rŏ Mo Ma Pŏ *Do So Sa[1]—Chrom. A, V, 7b.
5 14 3 5 9 14 3

The notes Mo and So are represented by Ga and Na respectively in the Mela system. They are Minor Thirds above Rŏ and Do respectively.

Lakshanas :

(1). **Grāma**—Sālanga Panchama, Varga Ka.

(2). **Murchhanā**—Saptamî kha.

(3). **Amsas**—Rŏ and Do.

(4). **Varjita Svaras**—Mo (Ga) and So (Na) in descent.

(5). **Nyāsa**—Sa.

(6). **Apanyāsa**—Ma.

(7). **Rāga Tānas :**

Nyāsa Tāna—Ma Rŏ Sa.

Upānta Tāna—Rŏ Mo Ma Pŏ Ma.

The Madhya Svara Ma, the starting note note of the Nyāsa Tāna, is the Vādî and the Apanyāsa. The Adhara Amsa Rŏ, the starting note of the Upānta Tāna is the Apa-vādî. The cadence of this Tāna like that of Prāchya Lalita is essentially oblique, though Mo, the note below the Apanyāsa Ma, is also usually used in it. The Nyāsa Tāna is simple and tetrachordal; and the Upānta Tāna is chromatic, oblique and trichordal. Rāga Pāschātya Lalita is a morning Rāga, as its Nyāsa Tāna is descending and ends with a Minor Semitone. The Upānta Tāna, being oblique adds materially to the descending character of the Rāga.

Puraka Tānas : (1) Do So Sa^1 ; (2) Rŏ^1 Sa^1 Do Po (Ma Mo) Ma
Sādhaka Tānas for the Antarā :

(1) Do So Sa^1 Rŏ^1 ; (2) Rŏ^1 (Sa^1 Rŏ^1) Mo^1 Ma^1 Pŏ^1 Ma^1

The Nyāsa Tāna is based on descending Simple Tetrachordal Cadence-Norm No. 13 (e) - Ma Rŏ Sa. The Upānta Tāna is based on ascending Chromatic Trichordal Cadence-Norm No. 1 (b)—Rŏ Mo Ma and ascending Simple Trichordal Cadence-Norm No. 2 (b)—Rŏ Pŏ Ma - combined together. Each of the two phrases, being equally conclusive, can be used as the Nyāsa Tāna of the Rāga. But, as the ascending chromatic phrase is more prominent and effective than the descending simple phrase, it is more suitable as the Nyāsa Tāna. This Rāga should, therefore, be treated as a night Rāga, though customarily it is sung in early morning.

Illustration : **Rāga—Pāschātya Lalita.**

Āsthāyî : **Tāla—Tritāla.**

{M: Rŏ: Rŏ: S: ‖ Ṡ: Rŏ: Mo: M: | Pŏ: -: M: -: |
Pi - - yu pi - - yu ra - ta - - - ta pa - pa - i - - yā.....

Do: Pŏ: M: —: | M: Mo: M: M: ‖ Do: —: Do: Do:
rā bo - - le..... a - - o - - - ra ko - ye - - - - li - - yā

Do: So: So: So: | Do: So: S^1: S^1: | Rŏ: Rŏ^1: S^1: -: ‖
sa - - ku - na de - - - - - ta mo - re pi - - yu - ke.....

Ṡ: Do: Do: Do: | Pŏ: -: M: Mo: | M: -: -: -: |
mi - - - - la - - na - - ko..... ā - - - - - ye.....

(M: Rŏ: Rŏ: S: ‖ Ṡ:)
(Pi - - yu pi - - yu ra)

Antarā :

Do: Pŏ: Do: So: | So: -: So: -: | Sī: Rŏ¹: S¹: S¹: |
Jhi - ngā - ra jhi - - ngā - - - re..... dā - - - - - du - - ra

So: -: S¹: -: | Sī: Rŏ¹: Rŏ¹: -: | Sī: So: Do: -: |
bo - - - - le ..... mu - - ra - - vā..... bo - - - - - le ...

Do: Pŏ: Pŏ: Pŏ: | M: -: -: -: | Rŏ¹: S¹: Rŏ¹: Rŏ¹: ||
va - - na va - - na - ke..... ā - - - va - na su -

Mo¹: -: M¹: M¹: Pŏ¹: -: M¹: M¹: | Mo¹: Mo¹: M¹: -: |
ni..... ma - na ra - - o - nga pi - - ta - - ma - - ki....

Rŏ¹: Rŏ¹: Rŏ¹: S¹: | Sī: Do: Do: D: | Do: Pŏ: Pŏ: -: |
ma - - ga - - na bha - ye..... sa - va gha - ra - ke.....

M: Mo: M: -: .
ji - - yā - - rā.....

The words of the above composition are the same as those of the song given in K. P. M., IV, 492. Natural Da is used throughout that song. The Mode-octave starts with Na_1 and the ascending Characteristic Phrase ends with Ga. The song is, therefore, in Prāchya Lalita. The use of Mi is a mistake. It should be substituted by Pa. This song is, however, usually sung in Pāschātya Lalita. We have, therefore, re-composed it in the proper Mode of that Rāga. If treated as a night Rāga, the song should conclude with M, the first note of the fifth bar, on which the final Sam should be placed.

B. GROUP B.

61. PURIYĀ.

[Chrom. B, I, 1—Go-Mo (71) Mela.]

Puriyā is one of the most beautiful and popular Rāgas sung all over northern India. It is believed to be based on Ro-Mi Mela without the fifth note. The omitted note may be either Pa or Pi. If it is Pa the Mela would represent the Third Mode of Chromatic Second Scale, Group B, the same as that of Rāga Puravî. But, we are told that there some

musicians who sing this Rāga with both the Dhaivatas.[8] The flat Da evidently stands for sharp Pa, natural Pa being unalterable according to current notions. Though the fifth note is omitted by most musicians, Pi can be used in this Rāga without destroying its typical character by slightly touching it in an oblique manner, thus: Da Pi Da. It is the Major Third above Ga and the Minor Third below Na in the consonant triad Ga Pi Na. So, it can be used cautiously by relating it to either of these two notes. The Mela of Puriyā is, therefore, Ro-Mi-Pi. Its Amsas are Ga and Da. Ro-Mi-Pi is not, however, the proper Signature for the Mela of this Rāga. It will be observed that two to four notes of the lower octave are used in the Āsthāyī of almost all compositions of this Rāga. Only two of these notes, viz. Da_1 and Na_1 are indispensible for true expression of this Rāga. The Mode-octave to be used in this Rāga is, therefore, Da_1-Da. If Sa be substituted for Da_1 as the Mode-Initial, the Mela-Signature would be Go-Mo, in which Mo would stand for Ga of Just Notation. This Mela represents the First Mode of Chromatic First Scale, Group B, of which the Tonics are Sa and Pa.

Correct Mode-octave :	Chrom. B, I, 1.
$\bar{Sa}$ Ra Go Ga $\bar{Pa}$ Da [Na] Sa^1	
9 5 3 14 8 9 5	
Customary Mode-octave :	
$\overset{*}{Da_1}$ Na_1 Sa Ro $\overset{*}{Ga}$ Mi [Pi] Da	
9 5 3 14 8 9 5	

8. Vide H. S. P., IV, 1063. There is a Rāga called 'Purviyā' sung very rarely, in which both the Dha's are used and Pa is omitted. It is quite probable that Rāga Puriyā was derived from this Rāga. The word 'Puriyā' seems to be a corruption of the Sanskrit word 'Purvyā'. Bhatkhande gives a composition of this Rāga in H. S. P., III, 343-4 and remarks that the Do of this composition is not at all felt as a flat note. He seems to suggest that the note may be taken as a sharp Panchama. (p. 344, lines 12-14). He characterizes this Rāga as a mixture of Puriyā and Māravā. It appears to be essentially Puriyā in character.

The correct Mode-octave in Just Notation and the Mode-octave customarily used are shown below :

Lakshanas :

(1). **Grāma**—Sālanga Prathama Varga Kha.

(2). **Murchhanā**—Prathamā.

(3). **Amsas**—Sa and Pa [Da_1 and Ga].

(4). **Varjita Svara**—Na (Pi) in descent, which can be used obliquely with Sa^1 [Da] as a touch-note, provided the Laghu Tritîya interval Sa^1-Da_1 [Da-Mi] is always kept open.

(5). Nyāsa—Go [Sa].

(6). **Apanyāsa**—Pa [Ga].

(7). **Vishishta Tānas:**

Nyāsa Tāna—Pa (Da Pa) Ga Go Ra (Sa Ra) Go Ga Go [Ga (Mi Ga) Ro Sa Na_1 (Da_1 Na_1) Sa Ro Sa].

Upānta Tāna—Sa Ra Ga (Pa) Da Ga Pa [Da_1 Na_1 Ro (Ga) Mi Ro Ga].

Puraka Tānas :

(1) Sa^1 Na Sa^1 Da Pa [Da Pi Da Mi Ga]

(2) Pa Na Sa^1. [Ga Pi Da]

The Uttara Amsa Pa [Ga] is the Vādî and also the Apānyāsa. The Adhara Amsa Sa [Da_1] is the Apa-vādî, and the Madhya Swara (Mediant) Go [Sa] is the Nyāsa. The Nyāsa Tāna is chromatic trichordal and descending in character, the cadence being oblique-direct. The Upānta Tāna is simple, pentachordal, ascending and oblique in character.

This Rāga is sung at dusk, which is called Sandhi i,e. the meeting point of day and night, partaking of the character of both.

The cadence of this Rāga is peculiar and has been termed oblique-direct, because both the downward and the upward leading notes are used in it consecutively before the Nyāsa note. Thus : Pa Ra Ga Go [Ga Na_1 Si Sa], which is the core of the Nyāsa Tāna. In this respect the cadence is quite similar to that of Rāga Iman, with which Puriyā is sometimes wrongly combined. The Nyāsa Tāna is based on Simple Trichordal Cadence-Norm No. 6 (d)—Pa Ra Go and Chromatic

Trichordal Cadence-Norm No. 5 (d)—Pa Ga Go combined together. It is sung at dusk.

Illustration :

Rāga—Puriyā.

Tāla—Tritāla.

Āsthāyî :

+ P: D: P: D: | o P: G: Go: Go: | R: S: R: Go: |
Chhi - na Chhi-na bā - - - - ta ta - -ka - ta -hun main

o G: -: G: -: | (Go:) | S: R: G: P: | o D: G: P: -: |
to - - - - ri..... (Chhi) ka - ba gha - ra ā - - - - ven.....

P.S¹. N S¹. D: P: | o P.R. G: Go: -: ||
mo - - - - - - - - re pi - - yā re.....

Antarā :

+ P: P: N.D. S¹: | o R¹: -: Go¹: Go¹: | Go¹: R¹: Go¹: Go¹: |
ja - ba - se ga - ye··· mo - - - ri su - -dha-hu na

o G¹: R¹: Go¹: -: || + Go¹: G¹: -: R¹: | o R¹: R¹: S¹: -: |
li - - - - -ni····· sa - - dā - - - rao - nga kā - he···

/ D: P: -: -: | o P R. G: Go: -: |
ra - ho····· ni - - yā - re·····

This song is an adaptation of the composition given in K. P. M, IV, 446, re-written in the proper Mode-octave with Sa as Mode-Initial.

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62. MĀRAVĀ.

[Chrom. B, I, 1—Go-Mo (71) Mela.]

Māravā is a Rāga of solemn character, which is rather difficult to execute.[9] It is based on the same Mode of the same Scale as that of Puriyā, and is apt to be confused with it by a careless musician. The Mela used in it is said to be

9. It is almost unknown to Bengal musicians and is seldom heard from musicians of western India. It is difficult to ascertain its character from the compositions given in K. P. M., II. They have to be materially modified in order to bring out its true character.

Ro-Mi, the same as that used in Puriyā. But, the Mode-octave used is Da_1-Da as in Puriyā. It is sung in a hexatonic form like the latter Rāga, in both of which Pa is said to be omitted. But, as Si is strong in ascent in both the Rāgas the omitted note of their original Mela is sharp Pa (Pi), which can be used in ascent and obliquely in descent in these Rāgas.[10] The Mode used in them is, therefore, the First Mode of Chromatic First Scale, Group B. The correct Mela-Signature is Go-Mo, in which Mo stands for Ga. The notes of the correct Mode-octave in Just Notation together with those of the customary Mode-octave are given below :

Correct Mode-octave :

*Sa	Ra	Go	Ga	*Pa	Da	[Na]	Sa^1
9	5	3	14	8	9	5	

Customary Mode-octave :

*Da_1	Na_1	Sa	Ro	*Ga	Mi	[Pi]	Da
9	5	3	14	8	9	5	

} Chrom. B, I, 1.

Lakshanas :

(1). **Grāma**—Sālanga Prathama, Varga Kha.

(2). **Murchhanā**—Prathamā.

(3). **Amsas**—Sa(Da_1) and Pa(Ga).

(4). **Varjita Svara**—Na [Pi] in descent, which can be used obliquely with Sa^1 [Da].

(5). **Nyāsa**—Ga (Ro, i.e. Si).

(6). **Apanyāsa**—Pa [Ga].

(7). **Vishishta Tānas :**

Nyāsa Tāna—Sa^1 Da Pa Go Ga [Da Mi Ga Sa Ro].

Uptānta Tāna—Ga Pa Da Pa [Ro Ga Mi Ga].

Puraka Tanas : (1). Sa Ra Ga Pa [Da_1 Na_1 Ro Ga].

(2). Pa Na Sa^1 [Ga Pi Da]

(3). Sa^1 (Na) Sa^1 Da Pa [Da (Pi) Da Mi Ga].

(4). Pa Ga Ra [Ga Ro Na_1]

10. Bhatkhande calls one of his ten Melas by the name Māravā. Use of this name for a Mela is misleading, as the position of the omitted note of the full Mela is indeterminate.

The Nyāsa Tāna is based on Chromatic Hexachordal Cadence-Norm No. 28(*a*)—Sa[1] Go Ga.

The Adhara Amsa Sa[1] [Da] is the Vadî of this Rāga while the Uttara Amsa Pa [Ga] is that of Puriyā.

The latter note is the Nāyaka Svara of Māravā. The Nyāsa Tāna of Māravā is chromatic, oblique, descending and hexachordal, while that of Puriyā is chromatic, oblique-direct, descending and trichordal. The main distinction between the two Rāgas is that the upper mediant Ga [Si] is the Nyāsa of Māravā, and the lower mediant Go [Sa] is that of Puriā.[11]

It will be observed that the omitted note Na [Pi] is used obliquely in Puraka Tāna No. 3.

Māravā is sung at dusk like Puriyā.

Illustration :

Rāga—Māravā.

Tāla—Tritāla.

Āsthāyî :

Ṡ[1]: S[1]: D: D: | P: P: P: Go: | Ġ: -: G: P:
Su - gha - ra su -gha - ra bae - - - - the.... sa - -va
P: P: D: P: P: -: P: Go: | Ġ: G: R: -: |
gu - ni ja - na de - - - kho····· gu - na - ki.....
Ṡ: R: G: P: N S[1]. D: P: -: |
rî - - - - ta ā - - no - - - - - khi....

11. In H. S. P., III, p.317 and IV, p.1064, Bhatkhande stresses the great importance of Ro (i.e, Si) in Rāga Māravā. He states further that some musical experts consider this note to be the Vādî of the Rāga. This view is quite correct, as this note is the Nyāsa of the Rāga ; and Nyāsa is often called Vādî by modern musicians. Bhatkhande clearly points out that descending phrases of Māravā must conclude with Ro and not with Sa as in Puriyā. The *pakad* of Māravā is stated by him to be Da Mi Ga Ro, and that of Puriyā to be Ga Na_1 Ro Sa. These are their Nyāsa Tānas. The Nyāsa Tāna of Māravā has to be provided with the Nāyaka Svara Sa, in order to make it a Perfect Phrase. It would, therefore, stand thus: Da Mi Ga Sa Ro.

Antarā :

P: -: P: D: | D: S¹: S¹: -: || Ṡ¹: N: S¹: -: |

Sa - - - pta su - ra - na - son····· gu - na - ko·····

Ṡ¹: D: S¹: -: | Ṡ¹: S¹: -: R¹: | -: G¹: G¹: G¹: |

gā - - - - - ve....., u - - nan - - - chā - - - - sa ku - - ta

Ṙ¹: S¹: S¹: S¹: | Ṡ¹: D: P: -: | D: G: -: P: |

tā - - - - - na su - nā - - - - - ve····· sa - dā - - - rao-

-: R¹: S¹: -: || Ṡ¹: N: R¹: S¹: | D: D: P: -: |

- - nga ri - - - - - jha - ta sa - - va ma - na - ko·····

This composition is an adaption of the song given in K. P. M., II, p. 283. The note Go in the second bar has been introduced as the Nāyaka Svara of the Nyāsa Swara G at the beginning of the third bar, on which final *Sam* is placed.

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63. PURAVÎ.

[Chrom. B, II, 3a and III, 3a—Ro-Mi (80) and Ro (87) Melas.]

This is a well-known but difficult Rāga based on Modes of two different Chromatic Scales. These are represented by Ro-Mi and Ro Melas, of which the latter is also used in Prāchya Lalita. Both natural and sharp Madhyamas are used in this Rāga. These are not used consecutively, as in Prāchya Vasanta in which both are substantive notes of a single Scale. The Amsas of both these Rāgas are the same, viz., Ga and Da[12].

12. According to Bhatkhande Rāga Puravî is to be sung in Ro-Mi-Do Mela He considers this to be the Janaka (parent) Rāga of the Mela and calls it by the name of the Rāga. It is stated by him that this Rāga is almost indistinguishable from Rāga Puriā Dhanāshrî, both of them being sung in the same Mela. The only distinguishing feature of Puravî is that both the Madhyamas are used in it, but not in Puriā Dhanāshrî. The use of two M's in Puravî is universally admitted. The Amsas of Ro-Mi-Do Mela are Ga and Na, which are said to be Vadî and Samvadî of Rāga Puravî. The note Ma is consonant to neither of these two notes. It is, therefore, wrong to use

In fact, the Mode of Prāchya Vasanta is a combination of the two Modes of Puravî referred to above leaving out the note Pa of those Modes. Ro-Mi Mela represents the 3a Mode of Chromatic Second Scale, Group B; and Ro Mela the Third Mode of Chromatic First Scale, Group B. In Just Notation they are to be written as follows :

(1) Sa Si *Ga Mi Pa *Da Na Sa^1 —Chrom. B, II, 3a.
3 14 8 6 8 9 5

(2) Sa Si *Ga Ma Pa *Da Na Sa^1 —Chrom. B, I, 3a.
3 14 5 9 8 9 5

Ma is always used as a chromatic note in oblique manner, thus : Ga Ma Ga. The peculiar flavour and beauty of Puravî Rāga is due to the large number of consonant triads which can be used in it. These are :

(1) Sa Ga Pa, (2) Sa Ga Da, (3) Sa Ma Da, (4) Si Ga Da, (5) Si Mi Da, and (6) Ga Pa Na, and the three inverted triads Ga Pa Sa^1, Ga Da Sa^1 and Ma Da Sa^1. It is, however, not easy to use all these triads in this Rāga without destroying its tyepical character. The triad Si Mi Da is peculiar to the Rāga and is found in Prāchya Vasanta also. Its Characteristic Phrases are situated in the Purvānga. Its Upānta Tāna is of an ascending character and terminates with Pa and its Nyāsa Tāna is descending and concludes with the

this note even chromatically in any Rāga, based on Ro-Mi-Do Mela. Musicians of the Vishnupur School of Bengal use Ro-Mi Mela in Puravî Rāga. Ga and Da are the Amsas of this Mela. Both the M's are consonant to the Amsa Da, to which they are related as Major and Minor Thirds. They are the substantive notes of two different Scales having the common Tonics Ga and Da. There is, therefore, no doubt that Ro-Mi Mela is the main Mela used in Puravî, the Ro Mela being used in it for chromatic purposes only. 'Puravî' will thus be seen to be a misnomer for Ro-Mi Do Mela. This Mela can neither be called Puriā Dhanāshrî, as it is indistiguishable from the Rāga called Dhanāshrî in Bengal, which is based on Ro-Goo-Do-Noo Mela. It may be called Paraja, the only famous Rāga which is really based on it.

Small Semitone Si-Sa. These are the peculiar features common to most afternoon Rāgas.

Lakshanas :

(1). **Grāmas**—Sālanga Dvitîya and Prathama, **Varga** Kha.

(2). **Murchhanā**—Tritîyā, Ka.

(3). **Amsas**—Ga and Da.

(4). **Varjita Svaras**—Si and Ma in ascent.

(5). **Nyāsa**—Sa.

(6). **Apanyāsa**—Pa.

(7). **Vishishta Tānas** :

Nyāsa Tāna—Ga Ma Ga Si Sa.

Upānta Tāna—Sa Ga Pa Da Pa.

Puraka Tānas—(1) Da Pa Mi Ga Ma Ga.
(2) Da Pa Mi Ga. (3) Si Ga Mi.
(4) Ga Mi Si.

Sādhaka Tāna—Ga^1 Si^1 Sa^1 Na Da.

The Nyāsa Tāna is based on Chromatic Trichordal Cadence-Norm No. 5(f)—Ga Si Sa. The Madhya Svara Sa is the Apavādî and the Nyāsa and the Uttara Amsa Ga is the Vādî. The Nyāsa Tāna is descending, chromatic and trichordal ; and the Upānta Tāna is ascending oblique, simple and pentachordal. The Upānta Tāna can be amplified by using obliquely the notes Si and Mi with the related notes Ga and Da, though they are dissonant to the starting and concluding notes of the phrase. Thus : Sa *Ga Si Ga* Pa *Da Mi Da* Pa. This is a typical afternoon Rāga, sung just before sun-set.

Illustration : **Rāga—Puravî.**

Tāla—Tritāla.

Āsthāyî :

*S: G.Si. G: P: | 0D.Mi. D: P: —: | +P.Mi. D: D.Mi. P: |
Kā - - - - ja - ra kā - - - - - re..... a - - - ta su - - - ka

0G: M: G: —: || +G.Mi. Si G: Mi: | 0D.Mi. Mi: G: —: |
bā - - - - re····· na - - - yi - na te - - hā - - - - - - re.....

+G.M. M: G: G: | 0Si: —: S: —: ||
lā - - - - - - ga - ta pi - yā - - re.....

Antarā :

$\overset{+}{G}$: G: P.Mi. D: | $\overset{0}{S}^1$: S^1: S^1: S^1: | $\overset{/}{N}$: N: S^1: S^1: |
Ni - ra - kha - - ta lā - ga - ta ka - - ra - ta ma - na

$\overset{0}{N}$: Si^1: S^1: —: | $\overset{+}{S}^1$: N: · S^1: G^1: | $\overset{0}{Si}^1$: Si^1: S^1: S^1: |
ba - sa - - me..... cha - pa - la cha - om - pa a - - ni -

$\overset{/}{N}$ D. —: D: Mi: | $\overset{0}{G}$: Si: —: S: ||
yā - - - - - - re pi - - yā - - - - - - - re

This song is an adaptation of the composition given in K. P. M., II, 238. Shuddha Dha has been used throughout instead of Komala Dha. Both the M's are used in most of the compositions of Puravî found in K. P. M. It is wrong to use in them Komala Dha, which is in reality Tîvra Pa, dissonant to both the M's. The two M's can be related to Shuddha Dha only. In order to have a correct Scale for these compositions either Shuddha M must be omitted or Komala Dha must be altered to Shuddha Dha. In any case, the Rāga character of most of these compositions is uncertain.

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64. LALITA, PRĀCHYA.

[Chrom. B, III, 1—Ro-Goo-Po-Do-No (86) Mela.]

This variety of Rāga Lalita, which is similar to but quite distinguishable from what has been called Pāschātya Lalita, has been called Prāchya Lalita in view of the fact that it appears to have been more popular in Bengal than elsewhere. For sometime past the western variety of the Rāga is gaining greater popularity in Bengal and the eastern variety is on the verge of extinction, though it possesses some especially good features, which the western variety lacks.

The tradition of different kinds of Lalita is as old as the time of Shārngadeva. That both the current varieties of Lalita are ancient and authentic will be evident from the fact that classical Dhrupad songs in both of them are still sung. A Dhrupad song of Baiju Baora composed in Pāschātya Lalita will be found in Sangîta Manjarî 2nd Edition (p.543) and

another composed by Tānasena in Prāchya Lalita will be found in Kantha Kaumudî, 2nd Edition (p. 53).

The apparent dissimilarity of the two modern varieties of Lalita is due to the fact that one of them, viz., Prāchya Lalita has, on account of the inadequacy of the existing Mela system, to be sung in a Mode-octave which starts with Na_1 of the lower octave. If sung in the proper Mode-octave the eastern variety will be found to be almost similar to the western variety, but clearly distinguishable from it.

The Mela-Signature of Prāchya Lalita is said to be Ro. The Amsas are Ga and Da. The note Ro represents Si, which is the Minor Third below Ga. The Mode-octave in which it is customarily sung represents the Second Mode of Chromatic Third Scale, Group B. The form this octave will take if it is made to start from Sa instead of Na_1 is shown below together with the customary Mode-octave in Just Notation :

Proper Mode-octave :

Sa	Rŏ	Rā	*Ma	Pŏ	Do	*Nŏ	Sa^1
5	3	14	5	9	8	9	

Customary Mode-octave : } Chrom. B, III, 2

Na_1	Sa	Si	*Ga	Ma	Pa	*Da	Na
5	3	14	5	9	8	9	

The note Pa exists in the customary form ; but it disappears in the proper form, which has Pŏ customarily called Mi.[13] The latter form cannot be expressed by the notes

13. There has been great divergence of opinion amongst different writers on musical theory regarding the use of Pa in this Rāga. Bhatkhande held that this note is to be omitted, while the Bengali author Kshetramohan Goswami held the contrary view. Krishnadhan Banerji, another Bengali writer, in G. S. S., I, 73 took the latter to task for holding this opinion. Bhatkhande made a long quotation from the aforesaid work in support of his own view in H. S. P., III, 415-417 ; but ultimately found fault with him for having committed an egregious blunder in omitting sharp Ma also from the Rāga. It is intriguing to note that Banerji, notwithstanding his ungracious diatribe against Goswami, himself used Pa at two places in his only illustration of the Rāga given in staff notation in G. S. S., II, 193. It is, therefore,

notes now used in the Mela system. For that purpose a new note to be called Goo, which is double flat of Ga, has to be introduced in that system for representing the note Rä of that

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evident that the same Mela was used by both the aforesaid Bengali authors, in Rāga Lalita, viz., Ro Mela with Pa. Bhatkhande was under the impression that he was using Ro-Mi Mela in his Lalita. But, in reality he was using Ro-Po Mela of Prāchya Vasanta, because he omitted Pa and used Mi in its stead as a substantive note which should be called Po according to the Mela system. There is no doubt that he was not dealing with Pāschātya Lalita, as he categorically excluded flat Dha, which is essential for that Rāga. We shall see below that he mixed up Prāchya Vasanta with Prāchya Lalita, using the latter in ascent and the former in descent. In page 412 (lines 1-6) of his aforesaid book he states that the phrase from which the Rāga can be recognized is either (1) Na_1 Ro Ga Ma Mi Ma Ga, or (2) Na_1 Sa Ga Ma Mi Ma Ga. These phrases differ only in their second notes. If these are taken as the starting notes of the phrases and the last Ga is omitted from No. (1) and Mi from No. (2), these phrases become quite identical with the ascending Characteristic Phrases of Pāschātya and Prāchya Lalitas respectively. In page 414 (lines 18-21) the author states that his *guru* was of the opinion that the presence of Sa in the phrase enhanced its beauty. The author was, however, not prepared to quarrel with the current practice, by which he evidently meant the use of Ro. Accordingly, his conclusion was that the note Ro is admissible in the phrase to a limited extent. The obvious implication is that Sa has to be made conspicuous in the phrase, while Ro may be either slightly touched or altogether omitted. From the above statements of the author it is clear that he was dealing with Prāchya Lalita and not with Pāschātya Lalita. This inference is further confirmed by the fact that he almost invariably uses Ga and not Ma as the concluding note of the phrase. The core of the phrase actually stands as : Sa Ga Ma Ga. The note Mi cannot be used in the phrase if it has to be extended, as this note is dissonant to the starting note Sa and must be substituted by Pa, which is consonant to Sa. It will thus be seen that inclusion of Pa was essential for the Lalita the author was dealing with and not its exclusion as he insisted upon. The importance given by the author to the phrase Da Mi Ma Ga, which is a Characteristic Phrase of Prāchya Vasanta, shows that he unwittingly introduced that Rāga in the descent of his Lalita. The note Na_1 of the lower octave and the note Da instead of Do are found in most of the compositions of Lalita given in K.P.M.,

form. The correct Mela-Signature of Prāchya Lalita is Ro-Goo-Po-Do-No, while that of Pāschātya Lalita is Ro-Po-Do.

Lakshanas :

(1). **Grāma**—Sālanga Tritîya, Varga Kha.

(2). **Murchhanā**—Dvitîyā.

(3). **Amsas**—Ma [Ga] and Nŏ [Da].

(4). **Varjita Svara**—Rĕ [Ro or Si] in ascent.

(5). **Nyāsa**—Sa [No_1].

(6) **Apanyāsa**—Ma [Ga].

(7). **Rāga Tānas :**

Nyāsa Tāna—Ma Rĕ Rŏ Sa [Ga Si Sa Na_1]

Upānta Tāna—Rŏ Ma Pŏ Ma [Sa Ga Ma Ga]

Puraka Tānas :

(1) Ma Pŏ Do (Nŏ) Sa^1 Nŏ [Ga Ma Pa (Da) Na Da].

(2) Nŏ Sa^1 (Nŏ) Do Pŏ Ma [Da Na (Da) Pa Ma Ga].

Notes to be used in the customary form are shown within angular brackets.

The Nyāsa Tāna is based on Tetrachordal Cadence-Norm No. 13(*e*)—Ma Rŏ Sa.

The Antarā should preferably start from Ma [Ga] the Upper Tonic and may proceed with the Tāna Ma Do Nŏ Sa^1 [Ga Pa Da Na] and may easily rise upto Ma^1 [Ga^1]. The

Vol. IV. Most of the important sections of all these compositions conclude with Ga instead of Ma. They are, therefore, based on Prāchya Lalita and the note Mi used in them must be substituted by Pa. That Bhatkhande was cognizant of the existence in western India of another kind of Lalita, in which Do was used as an essential note is evident from the composition given in H. S. P., III, 429. It was in this Lalita that Pa had to be omitted and Mi (Po) substituted for it and not in the Lalita he was himself dealing with, which was Prāchya Lalita.

It will be seen from what has been stated above that not only the two aforesaid authors of Bengal but also Bhatkhande dealt with the variety of Rāga Lalita, which we have called Prāchya Lalita. It is regrettable that Gopeshwar Banerji, in S. Ch., II, 374 denies the very existence of Prāchya Lalita in spite of the fact that three songs of this Rāga are given in Kantha Kaumudî, one of which is a composition of the great Tānasena.

Upper Tonic Ma [Ga], the starting note of the Nyāsa Tāna, is the Vadî and the Apanyāsa. The Mediant Rŏ [Sa], the starting note of the Upānta Tāna, is the Apa-vādî. The Rāga Tānas of Prāchya and Paschātya Lalitas are placed below side by side, so that their difference may be perceived at a glance :

Nyāsa Tāna { Prāchya Lalita—Ma *Rā* Rŏ Sa
Pāschātya Lalita—Ma Rŏ Sa

Upānta Tāna { Prāchya Lalita—Rŏ Ma Pŏ Ma
Pāschātya Lalita—Rŏ *Mo* Ma Pŏ Ma

It will be observed that both the Tānas of the two varieties of Lalita are similar in structure. The Nyāsa and the Apanyāsa are Sa and Ma respectively. The Nyāsa Tāna is tetrachordal and descending in both. The Upānta Tāna is trichordal, ascending and oblique in both. The only distinction between the two is that the Nyāsa Tāna is chromatic in Prāchya Lalita and the Upānta Tāna is chromatic in Pāschātya Lalita. The descending chromatic character and the concluding Minor Semitone of the Nyāsa Tāna of Prāchya Lalita make it especially appropriate for the earliest hours of morning, like Rāga Sohinî (q. v.).

The note Mi is found to be sometimes used obliquely in the customary form of this Rāga as a chromatic note along with Da, as will be seen in the Antarās of two Dhrupad songs given in Kantha Kaumudi (pp. 47 and 53). This use of the note is a momentary modulation to a different Scale. It cannot be used as a substantive note. If the proper form of the Mode-octave is used this note will appear as Pă, which is a note belonging to the Second Mode of Chromatic Second Scale, Group B. Rāga Puravî is based on the Third Mode of this Scale. The note Pă [Mi] is Minor Third below Nŏ [Da]. It can be used in an Āvarta Alankāra (turn) of Do [Pa) ; thus : Do Nŏ Pă Do (Pa Da Mi Pa).

Sādhaka Tānas for Antarā : (1) Ma Do Nŏ Sa^1
(2) Ma Sa^1 $Rŏ^1$ Sa^1
(3) Ma^1 $Ră^1$ $Rŏ^1$ Sa^1

Illustration

Rāga—Prāchya Lalita.
Tāla—Tritāla.

Āsthāyî :

M: Rā: Rŏ: S: S: Rŏ: M: M: Pŏ: —: M: —: |
Bho - ra bha - yi jā - go na - nda - la - l me - re

Do: Pŏ: M: —: M: M: M: M: | Do: Do: Do: Do: |
pi - - yā - - re····· a - - ru - na rā - - - - - ga de - kho

Do: Nŏ: Do: Do: | Pă: Do: Pŏ: M: |
chhā - - - - ye ga - - ga - - na pa - ra,

M: Ră: Rŏ: S: Rŏ: Rŏ M: —: | M: Do: Pŏ:
ja - - ga ja - - na chi - ta - me - n ha - ra - - kha - bha

M: —. —: —:
- re·····

Antarā :

M: M: M: Do: | Do: Do: Do: Do:
Pa - pa - yi - - ā ko - - ye - - li - - yā

Do: M: Do: Do: | Nŏ: —: Nŏ: —: | Do: Do:
va - - na va - - na bo - - - - le..... phu - la -

Do: Nŏ: Nŏ: Nŏ: S^1: Do: Pă: Do: Do: |
-gao - ndha bha - re cha - hun o - - - - - ra pa -

Pŏ: Pŏ: M: —: | M.M. M: S^1: S^1: ||
-va - - na - - me - n mu - kha chao - ndra te -

Rŏ^1: —: S^1: S^1: Rŏ^1: —: M^1: M^1: | M^1: Rŏ^1: Rŏ^1: S^1
-re... a - - ba mo - - - - ha - na pi - - yā - re.....

Do: —: Do: Do: || Do: —: Nŏ: Nŏ: | Do: Do:
de - - - - - kha - ne - - ko..... sa - - va ma - na

Nŏ: Do: | Pŏ: —: M: —: |
la - - la - - chā - - - - ye·····

This is an original composition of Prāchya Lalita written in the proper Mode. The note Pă, corresponding to Mi of the customary Mode, has been used obliquely in it as a chromatic note related to Nŏ, the Adhara Amsa. The Antarā is to be taken after "mere piyāre" at the end of the first section of the Āsthāyî.

65. VASANTA, PRĀCHYA.

[Chrom. B, V, 3a—Ro-Po (101) Mela.]

Rāga Vasanta is a very beautiful ancient Rāga, which is considered to be especially appropriate for the spring season, as its name indicates. It is, however, sung in the night of all seasons. It is mentioned in Sangîta Ratnākara of Shārngadeva, a book of the thirteenth century A.D. In that work it is stated to be derived from Rāga Hindola. Though the exact characters of the ancient forms of these two Ragas cannot be ascertained, the tradition of their inter-relationship appears to have been preserved in the similarity of these two Rāgas, as they are sung at present. The variety of Rāga Vasanta, which is analogous to the ancient Rāga of that name is sung in the eastern parts of India, especially in Bengal. Another variety of this Rāga, which is presumably of later origin, is found to be popular in western India. In order to distinguish them from each other, we have called the former Prāchya Vasanta and the latter Pāschātya Vasanta. It is interesting to note that these are quite different Rāgas, based on different Modes of different Scales. Both are equally beautiful. The Signature of the Mela used in Prāchya Vasanta cannot be expressed by means of the notes used in the existing Mela system. The Signature of that Mela is said to be Ro-Mi. But, as both Ma and Mi are used consecutively as substantive notes and not as alternative notes, and as Pa is omitted, the proper Signature of its Mela should be Ro-Po, in which Po representing Mi is a note that is not allowed in the existing Mela system. This note must be admitted in that system in order to enable the Signature of this Rāga to be correctly expressed. The Amsas are Ga and Da.[14] The

14. The aforesaid description of the Rāga is found in the books of all Bengali authors and also in the valuable Sanskrit work of Kāshināth Apātulasî called "Rāgakalpadrumānkura", in the following verses :—

"वसन्ततौं गेयो मृदुऋषभकस्तीव्रसकलः ।
पवर्ज्यो मद्वन्द्वः समगपुनरावृत्तिरुचिरः ॥
सवादी मामात्योऽप्यहनि निशि चाव्याहतगतिः ।
स्थितस्तारे षड्जे स जगति वसन्तो विजयते ॥"

Ro-Po Mela represents the 3*a* Mode of Fifth Chromatic Scale, Group B. It is to be written as follows in Just Notation :

Sa	Si	*Ga	Ma	Mi	*Da	Na	Sa[1]—Chrom. B, V, 3*a*.
3	14	5	3	14	9	5	

The notes Si and Mi of this Mode are to be represented by Ro and Po in the Mela system. They should be used in descent only.

Lakshanas :

(1). **Grāma**—Sālanga Panchama, Varga Kha.
(2). **Murchhanā**—Tritîyā Ka.
(3). **Amsas**—Ga and Da.
(4). **Varjita Svaras**—Si [Ro] and Mi [Po] in ascent.
(5). **Nyāsa**—Sa[1].
(6). **Apanyāsa**—Ga.
(7). **Vishishta Tānas :**

Nyāsa Tāna—Ga Ma Da Na Sa[1].
Upānta Tana—Da Mi Ma Ga.

Puraka Tānas :

(1) Sa Ma Ga.
(2) Ga Si Sa.

The Uttara Amsa Ga is the Vādî and the Apanyasa and the Adhara Amsa Da is the Apavādî. The Nyāsa Tāna is ascending, simple and hexachordal ; and the Upānta Tāna is descending, chromatic and tetrachordal.

Apātulasî makes no mention of any other form of Vasanta in his book. He gives the same Mela-Signature for Rāga Sohinî also. But, he gives different notes as Vādî and Samvādî of the two Rāgas and states that Sohinî is to be sung in the last hours of night. Vasanta, according to him, can be sung in any part of day and night. Vasanta is an ascending Rāga with Tāra Sa as Nyāsa (called Vādî), while Sohinî is a descending Rāga. Bhatkhande seems to find no distinction between Sohinî and Vasanta of the aforesaid form and discards the latter (Vide H. S. P., III. p.291). Strangely enough, however, he gives two compositions of this Rāga in pages 392 and 400 of K. P. M., Vol. IV. One of these, which is an well-known Dhāmāra song, is given below in a modified form by way of illustration.

Prāchya Vasanta and Shrî Rāga are based on the same Mode of the same Scale. But, their Characteristic Phrases, which are situated in the Uttarānga, are quite different in structure. We have shown, while dealing with Laghu Hindola, that ancient Hindola, from which ancient Vasanta is stated by Shārngadeva to have been derived, was Laghu Hindola. Ancient Vasanta must, therefore, have been analogous to Laghu Hindola. Vasanta of medieval Northern India also appears to have been analogous to Laghu Hindola. This will be seen from the description of that Rāga given by Hridaya Nārāyana in his Hridaya Prakāsha. In that book flat Dha is stated to be an Amsa of the Rāga and Pa is omitted in ascent. This description points to the fact that the Amsa Do had an open Minor Third below it. This is the destinctive feature of Laghu Hindola. Vasanta of southern India, which is called "Shuddha Vasanta" is, on the other hand, analogous to Āyata Hindola, as we have seen while dealing with that Rāga in a preceding chapter. It will thus be observed that Vasanta of medieval northern India and Shuddha Vasanta of southern India are both based on Primary Scales Modern Vasanta (Prāchya) of northern India is, however, a Chromatic Rāga. This Raga consequently appears to be a developed form of Vasanta brought about by the combination of the aforesaid two Vasantas of different parts of India, or, in other words, by the combination of Laghu and Āyata Hindolas. How this combination was effected has been shown in the description of Laghu Hindola.

It will be noticed that both Prāchya Vasanta and Āyata Hindola have the same Nyāsa Tāna. They differ only in the Upānta Tāna. The Vādî, the Apavādî, the Nyāsa and the Apanyāsa are all same in both the Rāgas.

The Nyāsa Tāna of Prāchya Vasanta given above is a simple ascending phrase based on Hexachordal Cadence-Norm No. 21 (c)—Ga Na Sa. This phrase is also used as the Nyāsa Tāna of Āyata Hindola. The Upānta Tāna of Prāchya Vasanta is a descending phrase based on two Cadence-Norms combined together, one of which is chromatic Trichordal

No. 5(c)—Da Mi Ma and the other simple Tetrachordal No. 13(c)—Da Ma Ga. Both of these phrases are equally conclusive in character ; and either of them can be taken as the Nyāsa Tāna of the Rāga. This Rāga may, therefore, be treated either as a night Rāga or as a morning Rāga. But, as the feature which distinguishes it from Āyata Hindola is its chromatic character, the descending chromatic phrase should, properly speaking, be taken as its Nyāsa Tāna. It should, therefore, be treated as morning Rāga, though customarily it is sung in night.

The relationship that subsists between Rāga Prāchya Vasanta and Āyata Hindola is quite similar to that which subsists between Darbārî Todî and Bilāskhānî Todî. They are based on converse Scales.

Illustration :

Rāga—Prāchya Vasanta.
Tāla—Dhāmār.

Āsthāyî :

{ G: M: | D: N: . . . . N: D: | D: D: .
Bhan - va - rā phu - lî..... ..... va - na -

Mi —: M: } G: —: | Si: S: | M: —: —: |
vā - - - - - ri yān... ka - chhu hāe.....

G: M: | D: —: | D: Mi: D: | N: —: | S¹: —: ||
su - - - - dha..... to - - - - - he ko - - - - i.....

S¹: N: S¹: | N: D: | D: —: | Mi —: M:
nā - - - - - - - hin... .... re.

Antara :

D: G: | D: N: | S¹: —: S¹: | N: —: | Si¹ S¹:
Ma - dha-ru - tā pā - - - - - ye lā - - - - - ja.

S¹: —: G¹: | M¹: G¹: | Si¹: S¹: | S¹: N: —:
du - - - - - ra ja - - na ta - - ja khe - - - - - -

S¹: Si¹: | S¹: —: N: D: —: | D: Mi: | D: —:
-la - - ta hāe·· na - ra····· nā - - - - ri - - - -

Mi: —: M: |
yān·····

Sanchārî

Ṡ: Ḍ₁ Ṁ: M: M: M: M: M: Ṁ: M: Ṁ: G:
Bhu - lyo - ki - ta do - - la - - ta i - - ta ta

M: —: D: Ṅ: —: | Ṡ¹: Ṡ¹: D: Mi:
tu - - - - ma jā - - - - na - ta ji - - - ta

Ṁ: —: | Ġ: —: Ġ: —: Si: Ṡi: —: | Ṡ:
ti - - - - ta..... pa - - - - hu pa - - - - ki

Ṡ: M: —: | Ṁ: —: | Ġ: —:
dā - - - - - - - - ri·

Ābhoga :

Ṁ: —: D: | Ṅ: —: | Ṡ¹: —: | Ṡi¹: —: Ṡ¹: |
Me - - - - - - - ri..... ka - - - - hi..... .....

Ṡ¹: N: | Ṡ¹: —: Ṡ¹: G¹: —: | Ṁ¹: G¹: Ṡi¹: Ṡ¹
tu - - - - - un..... mā - - - - - - - - - na..... le.....

Ṡ¹: D: —: | Ṁi: M: | Ġ: —: | Ṡ: M: —: |
a - - - - - - - - - bu - - - - iha..... ma - - - - en

Ṁ: —: G: —: M: D: —: | N: —: Ṡ¹:
to - - - - he..... de - - - - - - - kho - - - on

Ṡ¹: D: D: | D: —: | Ṁi: —: | Ṁi: —: M: |
ni - - pa - ta a - - - - - nā - - - - - ri..... re.

This song is an adaptation of the composition given in K. P. M, IV 400. The notes and the arrangement of accents in the Tāla have been much altered. The Antarā and the Sanchārî periods are to be started from the first Khāli after the Nyāsa Tāna "Bhanvarā phulî". The final Sam has been placed on the last syllable of this phrase, which is to be prolonged through the third bar of three Mātrās. The Ābhoga is to be taken up just after the Sanchārî period. The bracketted portion at the beginning, which contains both the Characteristic Phrases and thus shows the character of the Rāga, may be sung more than once.

The conclusion must be made with the syllable "lî", which is sung in the Nyāsa note Sa¹ and synchronises with the final Sam.

66. SHRÎ RĀGA.

[Chrom. B, V, 3a—Ro-Po (101) Mela.]

The name Shrî Rāga is very ancient. It is mentioned by Shārngadeva is Sangîta Ratnākara and stated to be based on Shadja Grāma, which is equivalent to Primary Second Scale. His commentator Kallinātha gave, as we have seen, a different tonality to this Rāga making its Scale Primary Third. In southern India this Rāga is based on a Mela, which is the Kārnātic form of Shadja Grāma and equivalent to No-Go Mela of northern India. Shrî Rāga, as it is sung in modern Hindusthānî music, is a quite different Rāga said to be based on Ro Mi-Do Mela, which represents the 6a Mode of Chromatic Fifth Scale, Group B. But, as the Mode-octave in which it is sung ranges from Pa_1 to Pa, the real Signature of the Mela of this Rāga should be Ro-Po, which is the same as that of Rāga Prāchya Vasanta., representing the 3a Mode of the aforesaid Scale. The Notes of the proper Mode-octave of the Rāga in Just Notation are given below together with those of the customary Mode-octave :

Proper Mode-octave :

	Sa	Si	*Ga	Ma	Mi	*Da	Na	Sa^1
		3	14	5	3	14	9	5
Customary Mode-octave :	Pa_1	Do_1	*Na_1	Sa	Ro	*Ga	Mi	Pa
		3	14	5	3	14	9	5

} Chrom. B,V, 3*a*

The notes Si and Mi of the proper Mode-octave are to be represented by Ro and Po in the Mela system, in which the new note Po has to be admitted.

Lakshanas :

(1). **Grāma**—Sālanga Panchama, Varga Kha.
(2). **Murchhanā**—Tritîyā Ka.
(3). **Amsas**—Ga [Na_1] and Da [Ga].
(4). **Varjita Svaras**— Si [Do] and Mi [Ro] in ascent.
(5). **Nyāsa**—Ma [Sa].

(6). **Apanyāsa**—Da [Ga].

(7). **Vishishta Tānas :**

Nyāsa Tāna—Da Mi Ma Ga Ma [Ga Ro Sa Na_1 Sa].

Upānta Tāna—Ga Ma (Sa^1) Na Da [Na_1 Sa (Pa) Mi Ga].

Puraka Tānas : (1) Sa Ga Ma [Pa_1 Na_1 Sa].
(2) Ga Si Sa [Na_1 Do_1 Pa].

The Adhara Amsa Da is the Vādî and the Apānyāsa and the Uttara Amsa Ga is the Apavādî. The Nyāsa Tāna is descending, oblique, chromatic and trichordal; and the Upānta Tāna is ascending, oblique, simple and tetrachordal. The Characteristic Phrases of Shrî Rāga and Prāchya Vasanta are both situated in the Uttarānga, but their structure is quite different.

The Nyāsa Tāna is based on simple trichordal Cadence-Norm No. 6(c)—Da Ga Ma and chromatic Trichordal Cadence-Norm No. 5(c)—Da Mi Ma combined together. Shrî is an afternoon Rāga. [Vide Gaurî].

Illustration :

Rāga—Shrî Rāga.

Tāla—Chautāla.

Āsthāyî :

+D: Mi: | 0D: Mi: | /M: —: /M: G: | 0M: M: |
Sha - - - - ang - ka - ra..... bha - - - - - - ash-

/M: G: | *M: M: | 0D: Mi: /M: —: | /G: —: |
ma..... cha - dhā - e ang - ga..... ba - e - -

0G: Si: /S: —: || +S: —: | 0G: G: | M: —: /M: —: |
- - - - - - the..... vi - - - - - rā - - ja - ta..... ma - - -

0M: G: | /M: —: || +G: M: | 0S^1: N: | /D: —:
hā - de - va..... de - - - - va ma - dha.....

|D: —: | 0Mi: G: | |M: —: ||
ā - - - - - di - - de - va.... ..

Antarā :

G: —: | M: M: | D: —: | N: —: | S^1: N: |
Nî - - - - la - - kao - nṭha... bhu - - - - te - sa -

S^1: —: | S^1: —: | G^1: M^1: | G^1: —: | G^1: Si^1: |
ra ..... tri - - - - ne - - tra tri - - - - - su - - - -

Si^1: Si^1: | S^1: —: | N: —: | D: N: | D: —:
la - - dha - ra ..... ka - - - - ra li - - ye.....

D: Mi: | Mi: Mi: | M: —: | M: —: | M: G: |
da - - - - - - - - ma - ru . .... ba - - - - jā - - va -

M: —: Mi: —: | M: G: | M: —: |
ta..... sha - - - - - - - am - bhu.....

This song is an adaptation of the composition given in K. P. M., III, 386, re-written in the correct Mode-octave, with Sa as Mode-Initial instead of Pa_1. The accents of the Tāla have been altered in position. The final *sam* has been placed on the first syllable of the seventh bar "cha", which is to be sung in the Nyāsa note Ma in concluding the song.

67. DHANĀSHRÎ.

[Chrom. B, V, 5—Ro-Goo-Do-Noo (103) Mela.]

Dhanāshrî is a very ancient Rāga, mentioned by Lochana Pandita in his Rāga Taranginî. The Mela of this Rāga given by Lochana is the same as that in which it is sung at present, viz., Ro-Mi-Do. It is one of the few Rāgas which have preserved their original character after more than seven centuries. In western India it is called Puriā Dhanāshrî. The tradition of Lochana's Dhanāshrî is, however, preserved in Bengal, where it is still called by its original name. As it is not possible to mix Puriā with Dhanāshrî because it is based on a different Mela, the word "Puriā" used as a prefix to Dhanāshrî in western India must be understood to be a misreading of the word "Purviyā", which means "eastern". This prefix appears to have been used in order to distinguish it from another quite different Rāga of the same name based on No-Go

Mela sung in western India. This Rāga came subsequently to be called Bhimpalāshî owing to its close resemblance with the letter. [15]

Dhanāshrî was one of the twelve Rāgas, which were considered to be most important at the time of Lochana, as they were the *janakas* or originators of all other Rāgas, and his twelve Samsthānas were called after them. If modern Melas are to be named after Rāgas according to ancient custom, the Ro-Mi-Do Mela should be named Dhanāshrî as it was called by Lochana, the oldest of authoritative writers on modern Hindusthānî music. It should not be called Puravî, which is based on a different Mela.

The proper Signature for the Mela of this Rāga is, however, not Ro-Mi-Do, which represents the Sixth Mode of Chromatic Fifth Scale, Group B. The Characteristic Phrases of this Rāga are situated in the Purvānga. The sharp Ma of the ascending Characteristic Phrase cannot be related to the starting note of this phrase unless it is made to begin with Na_1 of the lower octave, which is the Uttara Amsa of the Rāga

15. Lochana mentions another variety of the Rāga, which he calls Multānî Dhanāshrî (evidently collected from Multāna) and puts it in Ro-Do Mela. This variety is also mentioned by Hridaya Nārāyana in his two books. At a much later time Raja Pratap Singha mentioned in his Sangîta Sāra a Rāga of the same name, which he based on two Melas, Ro-Go-Do and Ro-Go-Mi-Do. The latter is the same as the Mela of modern Multānî Rāga. Lochana and Hridaya Nārāyana do not mention any variety of Dhanāshrî based on No-Go Mela. This variety is mentioned by all south Indian writers on music. It was evidently a southern Rāga, which appears to have been introduced into Hindusthānî music by Vitthala and Ahobala about the sixteenth century A. D. (Vide foot-note under Dvitîya Bhimpalāshî.)

Bhatkhande found during his sojourn in Calcutta that Puriā Dhanāshrî of western India is called Dhanāshrî in Bengal. (Vide H. S. P., III, 221). He also informs us that most musicians of northern India make no distinction between Dhanāshrî and Puriā Dhanāshrî. The name "Puriā Dhanāshrî" is not found in any ancient or medieval book. We, therefore, find no justification for calling the ancient Dhanāshrî Rāga by this name.

and related to Mî as Perfect Fifth below it. The Mode-octave to be used in this Rāga is, therefore, Na_1 to Na^{16}. The Mode of the Rāga is, conseqently, the Fifth and not the Sixth ; and so the relative positions of the Amsas are to be altered. If the starting note of the Mode-octave used is made to start with Sa instead of Na_1, we get the following notes of the proper Mode-octāve in Just Notation, which are given together with the notes of the Mode-octave customarily used :

Proper Mode-octave :

*Sa	Rŏ	Ră	*Ma	Pa	Do	Da	Sa^1	—Chrom. B,V, 5.
5	3	14	9	5	3	14		

Customary Mode-octave :

*Na_1	Sa	Ro	*Ga	Mi	Pa	Do	Na
5	3	14	9	5	3	14	

The correct Signature of the Mela used in this Raga is, therefore, Ro-Goo-Do-Noo. The notes Goo and Noo, which are double flats of Ga and Na have to be introduced into the Mela system in order to express the Mela correctly. This Mela is the first in the Mela system of Southern India, and is the Scale of Origin of that system. It is called Kanakāngi in modern books and Mukhārî in medieval books.

Lakshanas :

(1). **Grāma**—Sālanga Panchama, Varga Kha.

(2). **Murchhanā**—Panchamî.

(3). **Amsas**—Sa [Na_1] and Ma [Ga].

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16 The Dhrupad song of Suradāsa given in G. S. S, II, 176 and all good songs of this Rāga are found to be based on this octave. The note allocation of the Rāga given by Hridaya Nārāyana in his Hridaya Kautuka is G M P, (S^1) N D P M, G R S, N_1 (D_1) N_1 S. The octave-marks are put by us. The S in the first part evidently belongs to the upper octave ; and D and N in the last part to the lower octave. Ten notes ranging from D_1 to S^1 are used. The lowest and the highest notes D_1 and S^1 put within brackets, may be left out without affecting the character of the Rāga. The essential octave is, therefore, N_1 to N. If the concluding two notes N_1 and S are tacked to the first phrase, as usually done in rondo singing, we get the modern ascending phrase N_1 S G M P, in which M is sharpened in order to make it consonant to the starting note N_1.

(4). **Varjita Svaras**—Ră (Ro) and Da (Do) in ascent.

(5). **Nyāsa**—Rŏ [Sa]

(6). **Apanyāsa**—Do [Pa].

(7). **Vishishta Tānas :**

Nyāsa Tāna—Ma Ră Rŏ [Ga Ro Sa].

Upānta Tāna—Sa Rŏ Ma Pa Do [Na_1 Sa Ga Mi Pa].

Puraka Tānas :

(1). Ma Pa Do Da Sa^1 [Ga Mi Pa Do Na].

(2). Sa^1 Da Do Pa Ma [Na Do Pa Mi Ga].

The Nyāsa Tāna is based on chromatic Trichordal Cadence-Norm No. 5(e)—Ma Ră Rŏ,

Dhanāshrî is a very important and remarkable Rāga as it is based on a Mode which is identical with the Scale of Origin of South Indian music. This Mode must have come from Southern India. Lochana adopted the clever device of of starting the Mode-octave from N_1 in order to avoid the double-flat notes used in Southern India. Ahobala tried to introduce two new notes into the Northern System for these double flat notes. But, they were never used. These notes have been named in the present treatise Goo and Noo for the Mela system of Northern India.

The well-known Rāgas Sohinî and Gaurî are also based on this Mela. Dhanāshrî is an afternoon Rāga like Gaurî, while Sohinî is an early morning Rāga.

Illustration : **Rāga—Dhanāshrî.**

Āsthāyî : **Tāla—Chautāla.** **Suradāsa.**

+ / 0 / / 0
{S¹: S¹: | S¹: D: | D: Do: | P: M: | P: M: |
{Ā - - - - - la - - ta su - kha pā - - - - la - - ta

/ * 0 / /
Ră: Rŏ: || Rŏ: S: | Rŏ: M: | M: P: | Do: P: |
su - - kha su - kha su - - -

0 / + 0
P: P: | Do: —: || } Do: —: | Do: P: |
ma -ra - na..... } nā - - - - - - - - ma

/ 0 + /
M: P: | Do: S^1: | S^1: S^1: | $Rŏ^1$: —: || $Rŏ^1$: $Ră^1$: |
go - - - - vi - - - - - nda - - ji - - kā..... sa - - - - - -

0 / / 0 / /
$Rŏ^1$: S^1: | D: Do: | D: S^1: | $Rŏ^1$: S^1: | D.P. Do: |
- - - - - - - - dā..... li - - - - - - - - - - - - ie.....

Ābhogā :

Do: – : | Do: P: | M: P: | Do: S¹: | S¹: S¹: |
su - - - - - - - - - ra - ke..... svā - - - - mî pra -

Rŏ¹: – : | S¹: Rŏ¹. | Rŏ¹: M¹: | Rā¹: Rŏ¹: | Rā¹: – :
bhu ..... a - - - - - - nta - - - - - ra - - - - - - - jā - - - -

Ro¹: S¹: | D: Do: | Do: – : | P: M: | M: P: |
- - - - - - - mî.... ... sa - - - - - - - - ra - va.....

M: M: | Rā: Rā: | Rŏ: – : | S: – : | Rŏ: M: |
pu - - ra - na pra - bhu..... ṭhā - - - - - - - ku

P: – : | Do: P: | Do: S: | D.P. Do: |
ra..... me - - - - - - - - - - ro.....

This song is an adaptation of the Dhrupad composition of Suradāsa given in G.S.S., II, 176. Only the Āsthāyî and the Ābhoga periods have been reproduced. The song has been written in notes of the correct Mode-octave with the usual Sa as the Initial instead of Na_1, as found in the aforesaid book. The final *sam* has been placed on Rŏ, which is the Nyāsa note. The first syllable "ni" of the seventh bar is to be sung in that note at the time of concluding the song.

68. SOHINÎ.

[Chrom. B, V, 5—Ro-Goo-Do-Noo (103) Mela.]

This is one of the most beautiful and difficult Rāgas of Chromatic Scales. It is said to be based on Ro-Mi Mela, from which Pa is left out. The Mela of this Rāga is the same as that of Prāchya Vasanta, as both the Madhyamas are used in it as substantive notes.[17] It will, however, be observed that

17. The following description of Sohinî is found in Rāgakalpadrumānkura of Kāshināth Apātulasi :

"यत्र स्यादृषभो मृदुर्निधमगास्तीव्राः स्वराः पंचमो
वर्ज्यः स्यादथ मध्यमो निगदितः क्वापि क्वचित्कोमलः ।
वादी धैवत उच्यते सहचरो गांधारकः कथ्यते
रात्र्यामन्तिमयामके सुमधुरा सा गीयते सोहिनी ॥"

there are compositions of the Rāga, in which the Mode-octave used starts with Ga as the Initial. The preceding two notes Sa and Ra are, therefore, non-essential for this Rāga. If Sa is substituted for Ga as the Mode-Initial and the other notes are altered accordingly, the Mela-Signature becomes Ro-Goo-Do-Noo, in which Goo and Noo are double flat notes standing for Ra and Da of Just Notation. This Mela is very remarkable, inasmuch as it is identical with the Shuddha Mela of the Southern School of Indian music, i.e. to say, the Scale of Origin of that School, in which all the notes are considered to be Shuddha. It was called Mukhārî by all medieval writers beginning with Rāmāmātya ; but it is now called Kanakāngî. It cannot be expressed by means of the notes used in modern Hindusthānî music. It is for this reason that Rāga Sohinî is sung in Ro-Mi Mela, omitting Pa and using Ma as an additional substantive note. It is, therefore, not a Shādava Mela, as generally supposed, but a full Mela with two double Thirds Sa Si and Ma Mi, of which Si is written as Ro. As the octave in which it is customarily sung begins with Ga, it would stand thus :

Komala or Shuddha M is stated to be sometimes used in this Rāga. If this note is taken to be a substantive note used together with Tîvra M, the Mela of the Rāga becomes identical with that of Prāchya Vasanta. The character of the Rāga is brought out most clearly by using both the M's consecutively in descent. The Rāga should, therefore, be considered to be full and not hextatonic. Shuddha M (Ma) is used in the only composition of he Rāga given in S. Ch., II, 344 ; whereas, Tîvra M (Mi) is used in its only composition given in S. M. 542. In the foot note of p. 374 of the former book, the author Gopeshwar Banerji observes that the character of the Rāga is not altered by the use of either of these notes. In H.S P., III, 401 Bhatkhande states that there are three varieties of this Rāga, in which either Ma or Mi or both are used. He observes that the use of both the M's is appropriate for Rāgas sung in the last part of night. We find that such double notes are also used consecutively in Prāchya Lalita, the only other Rāga sung in that part of night. In both Sohinî and Prāchya Lalita these double notes are so used that a Small and a Minor Semitone are placed consecutively at the conclusion of these Rāgas, which are descending in character.

Customary Mode-octave :

*Ga	Ma	Mi	*Da	Na	Sa^1	Ro^1	Ga^1
5	3	14	9	5	3	14	

The Amsas of this Mela are Ga and Da. If Sa is taken as the Initial instead of Ga, the Mela would stand as follows in Just Notation :

*Sa	Rŏ	Ră	*Ma	Pa	Do	Da	Sa^1	} Chrom. B, V, 5
5	3	14	9	5	3	14		

This is the Fifth Mode of Chromatic Fifth Scale, Group B. The Modes of Sohinî and Prāchya Vasanta are different, though they belong to the same Scale. Compositions of these two Rāgas are sometimes made almost indistinguishable owing to want of care in keeping within their proper Mode-limits in the Āsthāyî period, in which the character of a Rāga has to be shown in its correct form.

Lakshanas :

(1). **Grāma**—Sālanga Panchama, Varga Kha.
(2). **Murchhanā**—Panchamî.
(3). **Amsas**—Sa [Ga] and Ma [Da].
(4). **Varjita Svara**—Ră [Mi] in ascent.
(5). **Nyāsa**—Sa [Ga].
(6). **Apanyāsa**—Do [Sa^1].
(7). **Vishishta Tānas :**

Nyāsa Tāna—Ma Pa Ma Ră Rŏ Sa [Da Na Da Po Ma Ga].

Upānta Tāna—Sa Rŏ Ma Pa (Do) Da Do
[Ga Ma Da Na (Sa^1) Ro^1 Sa^1].

Puraka Tānas : (1) Ma Pa Do Sa^1 [Da Na Sa^1 Ga^1].
(2) Sa^1 Da Do Pa Ma [Ga^1 Ro^1 Sa^1 Na Da].

The Nyāsa Tāna is based on Tetrachordal Cadence-Norm No. 13 (*e*)—Ma Rŏ Sa.

The Adhara Amsa Ma (Da) is the Vādî and the Uttara Amsa Sa (Ga) is the Apa-Vādî and the Nyāsa. The lower Madhya Svara Do [Sa^1] is the Apanyāsa. The Nyāsa Tāna is descending, chromatic and tetrachordal ; and the Upānta Tāna

is ascending chromatic and hexachordal. The Upānta Tāna is oblique, its Upānta Svara Da [Ro[1]] being situated above the Apanyāsa Do [Sa[1]]. Sohinî is a morning Rāga, as the Cadence Phrase is descending and situated in the Purvānga. It should be sung in the last hours of the night, which are also the earliest hours of the morning. Prāchya Lalita is the only other Rāga which is also set apart for these hours. Both these Rāgas conclude with a Small and a Minor Semitone.

There is no reason for the confusion that is often made of the Rāga with Prāchya Vasanta. This confusion arises out of the current practice of singing both the Rāgas in the same Mela without taking sufficient care about their Mode-octaves which are different. While in Prāchya Vasanta the Mode-Initial in Sa, the proper Initial for all Melas, in Sohinî the Mode-Initial is Ga. This note as Initial makes it impossible for an average singer to take the higher notes of the upper octave in the Antarā, if it is tuned to the speaking voice. For this reason and also to avoid confusion with Prāchya Vasanta, which is based on the same Scale, the Mela-Signature should be changed as shown above. If Sa be made Mode-Initial of both the Rāgas, their Characteristic Phrases, which have some similarity in their structure, will be found to be placed at opposite ends of the Mode-octave.

Illustration :

Rāga—Sohinî.

Tāla—Tritāla.

Āsthāyî :

M: P: M: M: | M: Rā: Rŏ: S: || S: Rŏ: M: P: |
Me - - - la - - ve - ko..... ji - - yā mo - rā

D: —: Do: —: | M: M: P: Do: | S[1]: S[1]: D: Do: ||
chā - - - he, ... i - - ta - - ni vi - - na - - ti su - na

P: Do: P: M: | M: M: Rā: Rŏ: |
ka - hi - - o jāe, e - - ri sa - - khi

Antarā :

/ 0 +
M: M: P: Do: D: Do: P: Do: || P: Do: P: M:
gha - ri gha - ri pa - la pa -- la chhi - na chhi - na

0 / 0
M: P: Do: P: | Rŏ: Rŏ: S: Rŏ: | M: P: Do: Do: |
ni -- sa di -- na, vi -- ka - la ho - - - - ta ji -- yā

+ 0 | +
P: Do: P: P: | M: M: P: P: | P: Do S^1: S^1: |
tu - ma - re da - ra - sa vi - na a -- ba gha - ra

0 + 0
$Rŏ^1$: S^1: D: Do: || P: Do: D: P: | P: —: M: —: |
pi - - - yā - ko..... ko - - - - - i le ā - - - - - ye .....

This song is an adaptation of the composition given in K. P. M., III, 410, re-written in notes of the proper Mode with Sa as Initial instead of Ga. Alterations have been made in wording, notes and positions of accents.

69. GAURÎ.

[Chrom. B, V, 5—Ro-Goo-Do-Noo (103) Mela.]

Gaurî is an ancient name. But, the Rāga as it is sung at present is quite different from the Rāga as it was sung at the time of Lochana Pandita. The Mela given for the Rāga by Lochana is Ro-Do, while it is now based on Ro-Mi-Do Mela, which is Dhanāshrî Mela according to him. A Secondary Rāga was thus transformed into a Chromatic one in the course of seven centuries. The Amsas of Ro-Mi-Do Mela are Ga and Na. The concluding phrase of modern Gaurî is ascending and placed in the Purvānga. It must start with the Amsa Na_1 of the lower octave. Its Mode-octave is, therefore, Na_1 to Na. If Sa be taken as the Initial of the Mode-octave, the Signature of the Mela, like that of Rāgas Sohinî and Dhanāshrî, will be Ro-Goo-Do-Noo. The notes of the proper Mode-octave in Just Notation and also those of the current Mode-octave are given below.

Proper Mode-octave :

*			*				
Sa	Rŏ	Ră	Ma	Pa	Do	Da	Sa^1
5	3	14	9	5	3	14	

—Chrom. B, V, 5.

Current Mode-octave :

$\overset{*}{\text{Na}}_1$ Sa Ro $\overset{*}{\text{Ga}}$ Mi Pa Do Na

The notes Ră and Da have to be written as Goo and Noo in the proper Mela-Signature. This Mela stands for the Fifth Mode of the Fifth Scale of Chromatic B Group, and is called Kanakāngî in Southern India. Gaurî is allied to Rāga Dhanāshrî, which is also based on the same Mode.

Lakshanas :

(1). **Grāma**—Sālanga Panchama, Varga Kha.
(2). **Murchhanā**—Panchamî.
(3). **Amsas**—Sa [Na_1] and Ma [Ga].
(4). **Varjita Svaras**—Ră [Ro] and Ma [Ga] in ascent.
(5). **Nyāsa**—Rŏ [Sa].
(6). **Apanyāsa**—Do [Pa].
(7). **Vishishta Tānas :**

Nyāsa Tāna—Ma Ră Rŏ Sa Rŏ [Ga Ro Sa Na_1 Sa]
Upānta Tāna—Sa Rŏ Do Pa Do [Na_1 Sa Pa Mi Pa]

Puraka Tānas :

(1). Ma Pa Do Da Sa^1 [Ga Mi Pa Do Na].
(2). Sa^1 Da Do Pa Ma [Na Do Pa Mi Ga].

The Nyāsa Tāna is based on Simple Trichordal Cadence-Norm No. 6(e)—Ma Sa Rŏ and Chromatic Trichordal Cadence-Norm No. 5(e)—Ma Ră Ro combined together.

The Adhara Amsa Ma [Ga] is the Vādî ; and the Uttara Amsa Sa [Na_1] is the Apavādî. The Nāyaka Svara Pa [Mi] of the Upanta Tāna is used obliquely, thus : Do Pa Do [Pa Mi Pa], the interval of Perfect Fifth Rŏ-Do [Sa-Pa] being kept open. It is this interval of the Upānta Tāna which distinguishes it from Dhanāshrî, with which it has much resemblaace. Gaurî, Shrî and Paraja, which have descending Nyāsa Tānas, are afternoon Rāgas, though they conclude with a Minor Semitone, because this interval is taken obliquely in them and the preceding interval of Small Semitone, being taken directly, is more prominent and effective than the concluding Minor Semitone, which is ascending in character, while the preceding

Small Semitone, being taken directly in descent, determines the afternoon character of these Rāgas.

Illustration :

Rāga—Gaurî.

Tāla—Chautāla.

Āsthāyî : Tānasena.

S: —: ‖ Rŏ: —: | Do: P: | Do: P: | D: P:
Ba - ang - shî - - - - dha - ra pi - - nā - - - - ka -

Do: M: | M: —: ‖ M: Rā: | M: M: | M: Rā: |
-dha - ra ga - - - - ngā - - - - dha - ra gi - - ri -

Rŏ: S: | Rŏ: Rŏ: Rā: —: ‖ M: —: Do.P. D: |
- - - - - - dha - - ra ja - - - - - tā - - - - dha - - ra

D: S^1: | S^1: D: | Do: Do: | Do: P: ‖ Do: D: |
mu - ku - - - - - ta - dha - ra rā - - - - - - - - - -

P.Do. M: | M: —: | Rā: M: | Rā: Rŏ: |
ja - - - - ta ha - - - - - ri - - - - - ha - - ra.

Antarā :

Do: P: | D: D: | Rŏ:^{1} S^1: | Rŏ^1: -: ‖ Rŏ^1.S^1. Rŏ^1: | Rŏ^1: Rŏ^1:
cha - - - nda-na - dha - ra bha - - - - shma - - - - - - dha - ra

Rŏ^1: Rŏ^1: | S^1: Rŏ^1: | Rā^1: Rā^1: | Rŏ^1: Rŏ^1: | S^1: Rŏ^1: |
pi - - - tā - - - - - - - - - - mba - - ra..... mri - - ga - - - - -

Rā^1.S^1. S^1: | D: —: | Do: Do: | Do: P: | Do: Rŏ^1.S^1. |
cha - - - - - - rmā - - - mba - ra cha - - - - kra - - - - - -

Rā^1: Rā^1: | Rŏ^1: Rŏ^1: | S^1: S^1: | D: D: | Do: Do: |
- - - - - - - - dha - - ra tri - shu - - - - la - dhā - ra

Do: P: ‖ Do: S^1: | D: Do: | P.Do. D: | P.Do. M: Rā: Rŏ: |
mu - ra - - - - - - - ha - ra sha - - - - - - - - ang - ka - ra

Sanchārî :

Do: P: | P: Do: | D: D: | S¹: –: | S¹: D: | D: Do: |
su - - dhā - - - - - - dha - ra vi - - - - - sha - - - dha - ra

D: Do: | Rŏ¹: S¹: | Rŏ¹: Rŏ¹: | Rŏ¹: Rā¹: ‖ Rā¹: Rŏ¹: |
ga - ru - - ḍā - - - - - sa - - - na vri - - - - - - kha - - - - -

S¹: D: | Do: Do: | Do: P: | Do: S¹: | S¹: D: |
vā - - - - ha - - na mā - - - - - - - - - - - - - - na -

D: Do: | Do.D. P: | P.Do. M: | M: Rā: | Rā: Rŏ: |
dhā - ra pa - - - rā - - me - - - - - - - - - - shva - ra

Rā: Rŏ: ‖ Rā: M: | Rā: Rŏ: |
î - - - - - - - - - - - - - shvā - ra

Ābhoga :

Do: M: | Do: S¹: Rŏ¹: Rŏ¹: | Rā¹:
ka - - - he..... Mi - - yān

Rŏ¹: S¹: Rŏ¹: Rŏ¹ | Rŏ¹: S¹: | Rŏ¹: Rā¹: | M¹: –:
- - - - na - - se - - na tu - - - - - ma..... dva -

Rŏ¹: Rā¹: | S¹: D: | Do: Do: | Do: Do: | Do: P:
sva - - ru - - - - - pa e - - - ka di - - je cha - ra -

Do: S¹: | Rŏ¹: Rā¹: ‖ S¹: D: | Do: Do: | Do: D: |
-na..... kri - - - - - - - - nā..... ka - - ra shi - - - -

P.Do. M. | Rā: Ro: |
-ra ..... pa - - ra.

The Dhrupad song composed by Tānasena given in S. M., 224, has been reproduced above with slight alterations. The song has been re-written in the correct form with Sa as the Mode-Initial instead of Na_1 as found in the aforesaid book. The starting note of the first phrase, which is the Upānta Tāna, has been taken to be Sa, corresponding to Na_1 of the customary form, instead of Rŏ, corresponding to Sa of that form, because Pa, the Upānta Svara of the Apanyāsa Do, is dissonant to Rŏ but Perfect Fifth above Sa. This substitution gives the correct form of the Upānta Tāna of the Rāga. The note Ma found in the book, which corresponds to Po of the correct form, has

been omitted, as it is dissonant to both the Amsas Na_1 and Ga of the customary form, which correspond to Sa and Ma of the correct form. The Antarā and the Sanchārî are to be taken after the third bar of the Āsthāyî and the Abhoga after the Sanchārî period.

70. PARAJA.

[Chrom. B, V, 6a—Ro-Mi-Do (104) Mela.]

Paraja is a beautiful popular Rāga, having a clear and definite character. It is based on Ro-Mi-Do Mela and has Ga and Na as its Amsas. Its Mela represents the 6a Mode of Chromatic Fifth Scale, Group B. Owing to the difficulty in distinguishing similar tetrachords referred to in a preceding chapter, this Rāga is apt to be confused with Pāschātya Vasanta, which is wrongly sung in the same Mela by most musicians of western India[18]. The notes used in Rāga Paraja are as follows in Just Notation :

Sa	Si	*Ga	Mî	Pa	Pi	*Nā	Sa^1	—Chrom. B, V, 6a
3	14	9′	5	3	14	5		

The notes Si and Pi of Just Notation are represented by Ro and Do in the Mela Ro Mi Do.

Lakshanas :

(1). **Grāma**—Sālanga Panchama, Varga Kha.

(2). **Murchbanā**—Shashthî Ka.

(3). **Amsas**—Ga and Na.

(4). **Varjita Svaras**—Si and Mî in ascent.

(5). **Nyāsa**—Pa.

(6). **Apanyāsa**—Na.

(7). **Vishishta Tānas :**

Nyāsa Tāna—Na Pi Pa Mî Pa.

Upānta Tāna—Pa Na Pi Na Sa^1 Na.

Puraka Tānas—(1) Ga Si Sa ;

(2) Ga Mî Pa Pi Na.

18. The cause and remedy of this confusion have been fully discussed in the description of Pāschātya Vasanta.

The Uttara Amsa Na is both Vādî and Apanyāsa ; and the Madhya Svara Pa is Apavādî and Nyāsa. The Upānta Tāna is chromatic, ascending, oblique, and trichordal : and the Nyāsa Tāna is chromatic, descending, oblique and trichordal. The Nyāsa Tāna is based on Trichordal Cadence-Norm No. 5(b)—Na Pi Pa and Trichordal Cadence-Norm No, 6(b)—Na Mî Pa combined together. It is an afternoon Rāgā. [Vide Gauri.] Its Nyāsa Tāna is in structure, converse to that of Pāschātya Vasanta.

Illustration : **Rāga—Paraja.**
Tāla—Ekatāla.

Āsthāyî :

*P: N: Pi: N: S¹: N: | N: Pi: P: |
Phu - la -- vā vi - - na - ta dā - - - ra

0 P: Mî: P: | + P: —: P: | 0 Pi: —: P: |
dā - - - - - ra go - - - - ku - la - - - - - ki

/ Mî: Mî: G: | 0 Si: —: S: | + S: —: G: |
sa - - va ku - mā - - - - rî, cha - on - dra -

0 G: G: G: / Mî: P: Pi: | 0 N: N: N: ||
-va - da - na cha - ma - ka - ta vri - ka -

+ P: N: —: | 0 S¹: —: N: | / Pi: P: Mî: |
bhā - - - - - - na - - - - - ki - sho - - - - - - -

0 P: —: —: ||
-rî .....

Antarā :

+ G: —: Mi: | 0 —: P: P: | / P: N: N: |
Le..... ho..... cha - li ch - - lo ku-

0 S¹: N: N: | + N: —: S¹: | 0 N: —: Pi: |
-mā - - - - rî ā - - - - - pa - no..... an -

/ Pi: N: N: | 0 N: —: N: || + S¹: N: S¹: |
cha - - la sa - mā - - - - ri ā - - - - - - ye...

0 S¹: G¹: G¹: | / Si¹: —: Si¹: | 0 S¹: —: S¹: || + N: —: S¹:
vra - - ja cha - on - dra lā - - - - la e

0 N: —: N: | / Pi: P: Mî: | 0 P: —: —: ||
-ri..... gu - jā - - - - - - - ri... .....

This song is an adaptation of the composition given in K. P. M., IV, 373. It has been thoroughly altered both in the notes and the Tāla. The note Si[1] (Ro[1]) of the upper octave has been omitted in the Asthāyî, as it is dissonant to the starting note Pa and the concluding note Na of the Upānta Tāna, and is apt to create confusion with the Nyāsa Tāna of Pāschātya Vasanta which is in its structure converse to the Nyāsa Tāna of Paraja. The Ekatāla has been treated as a rhythm of three Mātrās in a bar, according to the Bengal custom. The accents have accordingly been thoroughly changed in position.

CHAPTER XVIII.

STYLE (RÎTI).

A. STYLES OF HINDUSTHĀNÎ MUSIC.

Hindusthānî music is remarkable not only for its Melodic Types but also for its Styles, which give expression to those Types in different ways Both of them hold unique positions in the world of melodic music. The thundering majesty of the Mridanga (Pākhwaj) and the tingling elegance of the Tablā give shape and colour to rhythms of varying grades ranging from the sublime to the beautiful, which characterize the Styles of Hindusthāni Music. That rhythm is the very soul of the Styles of that music is shown by the fact that musical rhythms (Tālas) of different structure are deemed essential for distinguishing them from each other. These rhythms are analogous to those of poetry ; and similar rhythms of music and poetry are blended together in some Styles of of Hindusthāni Music. There are three classes of musical rhythms (Tālas) which are differentiated by the number of bars (Padas) constituting them. Rhythms of one of these classes consist of six bars and those of the other two consist of four and two bars.

Three other elements of secondary importance, which determine the character of Styles, are form, way of presenting the Final (Nyāsa) and Semi-final (Apanyāsa) of Rāgas, and embellishment. One of the Styles of Hindusthāni Music is characterized by absence of rhythms. Styles of Hindusthāni Music may be placed under four main categories according to either the absence of rhythm or the structure of their characteristic rhythms ; viz., the Plain, the Grand, the Free, and the Elegant Styles.

(a). THE PLAIN STYLE (SARALA RÎTI) : ĀLĀPA.

This Style which is designated Ālāpa, is not fettered by any limitations of rhythm and is practically free from all rules.

No Tālas are, therefore, used in this Style. The usual practice is to sing a Rāga in this Style before singing it in any other style in order to present it in its pure character and true spirit. It is the most difficult of all Styles, inasmuch as, not being based on any compositions of fixed notes, it requires for its proper execution a sound knowledge of the character of the Rāga and an insight into its true spirit, which are attainments that can be acquired through long experience by musicians possessing a true musical sense. In this Style a Rāga is sung with the aid not of words of any language but of some meaningless syllables composed of only four soft consonants, including the two dentals ṭ (त) and n (न), one labial m (म) and one cerebral r (र).

The syllables mostly used are : ṭā (ता), ṭe (ते), ṭome (तोम) ; nā (ना), ne (ने), nome (नोम्) ; re (रे), and rome (रोम्).

(b). THE GRAND STYLE (UDĀTTA RÎTI) : DHRUPAD.

The Grand Style, which is known by the name Dhrupad, is characterized by musical rhythms (Tālas) consisting of six accented bars (Padas). These rhythms are analogous to the poetic rhythms of Greek and Latin prosody known as "Hexameter", in which great epics were written by Homer, Dante, Virgil and other illustrious poets. The typical musical rhythm of this Style is called "Chautāla", inasmuch as four of its six bars are strongly accented. This word has become almost synomymous with the word "Dhrupad". The six bars of this Tāla are all equal in length. Tālas consisting of six bars of unequal length are also used in this Style. The Tālas of this description mostly used in this Style are Dhāmār and Soola-tala. It will be shown below that there are other Tālas of similar structure which can be used in this Style[1],

1. Dhāmār has been included in the Dhrupad Style in this treatise, because that Tāla possesses the essential feature of that Style, viz., six Padas. Compositions in this Tāla are called "Hori", as they are intended to be sung in the "Hori" festival and contain descriptions of that festival. They are, however, now-a-days sung at all times and given the same

The Dhrupad Style of Hindusthānî Music which has rhythmic similarity with the epic poetry of ancient Greece and Rome, is characterized by the same solemnity, majesty

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place of honour as compositions in the Dhrupad Style. In fact, Dhrupad singers almost invariably sing songs in this Tāla immediately after those in Chautala, the typical Dhrupad Tāla. This is enough proof that these compositions are, owing to the Shat-Padî character of that Tāla, considered to be quite similar to other compositions of the Dhrupad Style. It is, however, a remarkable fact that not a single composition in Dhāmār Tāla is to be found amongst the compositions of 'Tānasena' and other ancient masters. This shows that Dhāmār had not yet come into use amongst orthodox musicians in the time of Tānasena. It is, however, to be noted that the Teebrā (Teorā Tāla was used by ancient Dhrupad singers. Two compositions in that Tāla by Haridās Swāmî and one by Baiju Bāorā are to be found in Sangîta Manjarî (pp. 169, 171, and 245, Ed. 1935). There are many compositions in this Tāla by other old masters. This Tāla, which is incomplete in its rhythmic structure, appears to have been supplanted at a later period by Dhāmār Tāla, which is the same Tāla in its full form. It is a well-known fact that Dhāmār had its origin in the Mathurā district of northern India, where songs sung in the "Hori" festival are composed in this Tāla. The two words "Hori" and "Dhāmār" are found to be sometimes used as synonymous terms ("Khelata Dhāmār", S.M., p. 500) and almost all songs in this Tāla are descriptions of the Hori festival. There is, however, no reason why this Tāla should have only a limited use in songs of light character like Hori. Songs in lofty subjects are found to have been composed by great masters in Teebrā Tāla, which is only an abridged form of Dhāmār Tāla. A few Dhāmār songs are, in fact, found to deal with subjects other than "Hori" (Vide, songs of Krishna Rasik and Rasaranga in S. M., pp. 189 and 213).

Soola-Tāla (Sur-phāktā) stands on the same footing as Teebra Tāla. Both of them are incomplete in rhythmic structure and have to be doubled in order to have rhythmic fulness. In this full form Soola-Tāla should have its legitimate place in the Dhrupad Style.

Many compositions in Jhāmptāl by great masters have been included in the Dhrupad Style. The Tāla is Chatushpadî and, therefore, quite distinct from the Shat-Padî Tālas of the Dhrupad Style. This distinction appears to have been realized at a later period and compositions in this Tāla, on account of this peculiarity and their intrinsic beauty, came to

and sublimity, which are usually attributed to that poetry. It is, therefore, legitimately considered to be the greatest of all Styles. Songs in this Style were originally sung in temples in praise of the Deity. When this Style came to be patronized by sovereign rulers, songs were sometimes composed in this Style in praise of the patrons of the musicians. This Style is, however, suitable for all songs dealing with solemn and ennobling subjects.

As hymns composed in Sanskrit poetry were originally sung in this Style, the poetic rhythms of these hymns had to be so chosen that they might be compatible with the musical rhythms used in that Style. Owing to this tradition the Style came to be inalienably associated with those poetic rhythms which were analogous in structure to the musical rhythms used in that Style. The poetic rhythms of the songs of modern

be set apart in a seperate Style and called by the name "Sādrā", though they are sometimes sung in accompaniment of Mridanga (Phākwāj).

A few compositions in a Tāla called "Dhimā Tetālā" (i.e. slow Tritāla) are found to be included in the Dhrupad Style in some Bengali works. The word "Dhimā Tritāla" is found nowhere in the works of Bhatkhande. Two songs in this Tāla, one by Baiju Bāorā and another by Tānasena are given in Sangîta Manjarî (pp. 163 and 432, Ed. 1935). Inclusion of this Tāla in Dhrupad Style is to be accounted for by the facts that Kheyāl had not yet been recognized as a distinct Style at this period and that no occasion had arisen for a clear demarcation between the rhythmic characters of these Styles. With the growing popularity of Kheyāl and its recognition as a separate Style, the difference between the rhythmic characters of the two Styles as Shatpadî and Chatushpadî came to be clearly recognized. As a consequence, Dhrupad singers found Tritāla to be incompatible with the spirit of that Style. Songs in this Tāla are, therefore, now seldom sung by these singers. It is realized by them that mere change of tempo cannot alter the Style of the song. Songs in Tritāla are found to be sung by Kheyāl singers of Gwalior in slow (Dhimā) tempo (Vide Sangita Prabesh, Part II, p. 38, published by Krishna Rao Shankar Pandit, Principal of Shankar Gāndharva Vidyālaya at Gwalior, 1936) as well as in quick (Jalad) tempo (Vide Ibid., pp. 1, 6 &c.)

Hindusthānî music have, according to this tradition, to be adjusted to the musical rhythms of the Style. Words of poetry have, therefore, become an important factor in compositions of the Dhrupad Style. Whatever the language of the poetry, the poetic rhythms must be adjusted to the musical rhythms, if the true character of the Style has to be preserved.

Appreciation of this Style of solemn character requires an elevated mood of mind, which cannot be expected in the average musician or listener. Even musicians, who are proficient in this Style are said to be sometimes lacking in the proper mood and to have recourse to artificial means for creating it, such as the use of mild intoxicants. This accounts for the comparatively lesser popularity of the Style. Special training for cultivating an appreciative ear must be encouraged, if the popularity of this great Style has to be increased.

Though Dhrupad is inalienably associated with rhythms of poetry, the language of the poetry must not deal with abstruse or engrossing ideas which are apt to divert the attention from the true spirit of a pure Rāga. Dhrupad would, otherwise, degenerate into "Poetic Music", which is not "Pure" but "Applied" music, in which poetry is the main objective and not melody. It should be borne in mind that Dhrupad had its origin in "plain" devotional songs.

(c). THE FREE STYLES (MUKTA RîTI).

(i). Kheyāl :

The essential feature of this Style, which is called "Kheyāl", is that the musical rhythms (Tālas) used in compositions of this Style consist of four accented bars (Padas). These rhythms are much easier to handle than those consisting of six bars. They are lighter in character and give freedon to the artist for variations and improvisations. They also afford to the musicians opportunity for introducing the personal element, i.e. to say, for exhibiting his "personality". The freedom, characteristic of this Style, on the one hand, enables talented musicians to develop personal styles which can earn fame for them ;

and, on the other hand, degenerates into licence in incompetent artists, which is apt to bring about deterioration in the character of the Type. There is little such danger in the Dhrupad Style, as compositions of this Style consist of notes which are fixed with rhythmic rigidity. Classical compositions of the Dhrupad Style are, therefore, as a rule, considered to be purer than those of the Kheyal Style and nearer to the original Types. In fact, no Type is considered worth the name unless it is found to be suitable for the Dhrupad Style.

The freedom referred to above is, however, not equally possible in all compositions in this Style. Owing to this circumstance, the Style has been divided into two classes by musicians of the Gwalior School: "the great Kheyāl" (Barā or Motā Kheyāl) and "the little Kheyāl" (Chhotā or Lahān Kheyāl—Vide. K. P. M.—IV, 33). The great Kheyāl is based mainly on Vishama-Padî (having bars of unequal length) Tālas; e.g., Jhāmptāl and Jhumrā; and the small Kheyāl on Sama-Padî (having bars of equal length) Tālas. There are three Sama-Chatushpadî Tālas, in which the Padas (bars) consist of two, three and four Mātrās. The only Tāla found to be used in the little Kheyāl Style is Tritāla or Kāwāli, in which the Padas consist of four Mātrās. No Kheyāl composition in the Tri-Mātric Chatushpadî Tāla is to be found in the books of Bhatkhande and other authors of Western India. This Tala appears to have been abandoned in all parts of northern India except Bengal. The reason for its disappearance from western India appears to be that improvisation of Tānas is considered rather difficult in singing compositions of this Tāla. This difficulty should not stand in the way of its use.[2]

Kheyāl is a great Style; but, that greatness is not due to freedom for improvisations of Tānas, which are often apt to submerge the Type. It is due to the fact that it enables the artist to present the Type not only in its true spirit but also

2. That it is quite possible to improvise Tānas in this Tāla will be evident from the two compositions found in Gîta Darpan (pp. 4 and 12), published by Gopeshwar Banerjee of Bengal.

in various forms without swerving from loyalty to that spirit. The Types, though comparable to patterns, are not rigid in form but flexible and afford ample scope far variations to talented artists. Kheyāl is, therefore, often more expressive than Dhrupad, though it lacks the gravity and grandeur of the rhythms of that Style. A classical Dhrupad composition exhibits the talent of a great artist in a definite and correct form of the Type in which it is composed and, therefore, possesses a permanent value. In Kheyāl, on the other hand, the composer is usually thrown into the background and the executant displays his personal talent in fleeting forms of the Type. A Kheyāl singer possessing striking personality is, therefore, capable of exacting high admiration from his listeners and contemporary connoisseurs, but leaves no legacy for future generations like a great composer in the Dhrupad Style.

(ii). *Tārānā* :

This is also included in the Free Styles and may be considered as a variety of the Kheyāl Style. The sole difference between the two varieties is that Tārānā is free from all bonds of language. Meaningless soft syllables are used in this Style instead of words as in the Ālāpa Style. The syllables used are, however, different in the two Styles. The four consonants ṭ (त), n (न), m (म), and r (र) are used in both the Styles. Two additional dentals ḍ (द, pronounced like 'th' in 'the', 'then' etc.) and l (ल) are used in Tārānā. The first of these two is the most favourite consonant of this Style. It is used in such combinations as : o-ḍe (ओदे), ḍe (दे), o-ḍā-ni (ओदानि), ḍā-ni (दानि), ḍā-re (दारे), ḍi-yā (दिया), ḍim (दिम्), ḍir (दिर्), ḍre (द्रे) and ḍe-re (देरे). The consonant l (ल) is used in such combinations as : ā-lā (आला), lā (ला), lāe (लाए) and lya (लिया). Some of the combinations used in Ālāpa are also used in Tārānā.

The special merit of this Style is that it can be used universally irrespective of the language spoken by the singer. It can, therefore, be made the common vehicle for teaching Rāga music to students of all countries. It is the best means

of expressing the true spirit of a Rāga, free from poetic or other considerations.

(d). THE ELEGANT STYLES (LALITA RÎTI).

(i). Tappā :

This Style is usually based on a Chatushpadî Tāla called Madhyamāna, which is similar in structure to Tritāla. It is, therefore, analogous to the Kheyāl Style, with which it is sometimes hybridized, giving rise to what is known as Tap-Kheyāl. Songs in this Style are sung in slow *tempo* and devoted to emotional subjects. It is also used for devotional purposes, especially in Bengal.[3]. It is essentially sentimental in character and quite free from the lightness often found in songs of the Thumri Style The special feature of this Style is that the penultimate phrase and sometimes also other phrases except the final one of a song in this Style conclude with short Tānas. These are interwoven with the texture of the composition and form inseparable parts of it, unlike those of the Kheyāl Style, which are almost invariably unconnected with the texture and sung separately and independently. This Style is very limited in its scope, as only a few Rāgas have yet been used in it. Its scope may possibly be increased by including more Rāgas in it. The Rāgas used in this Style are specially suited to its sentimental character and seldom used in the Kheyāl Style. The Rāgas mostly used are Bhairavî, Sindhu and Khāmbāj, which are also used in Dhrupad but never in Kheyāl.

3. This Style became very popular in Bengal about the middle of the 19th century A.D. Numerous Bengali love-songs composed in this Style by Ram Nidhi Gupta gained great popularity in Bengal at this period. Many devotiona. songs, especially of the Shakti cult, also became very popular. Many songs of Poet Tagore bear clear impress of this Style Some devotional songs of the Brāhmo Samāj are found to be composed in this Style. It appears that the Style found a more congenial soil in Bengal than in other parts of India, where it is fast disappearing.

(ii). Thumrî :

This Style is based on Dwi-Padî (of two bars) Tālas. The number of bars of these Tālas is half of those of the Kheyal Style. The rhythmic character of this Style is light, as the super-strong accents (Ati-guru Praghāta or Sam) recur quickly in it, coming at every alternate bar. The bars are of equal length and consist of either four or three or two Mātrās. The Tālas consisting of eight and four Mātrās with two Padas (bars) of four and two Mātrās each, are called Thumri and Kāhārbā. Thumri is most commonly used in the Style named after it. The other Tāla often used in this Style is called Dādrā, which consists of six Mātras divided into two Padas of three Mātrās each. As the rhythmic cycles of these Tālas contain only eight or six or four Mātrās, the phrases constituting the compositions in this Style are very short and most suitable for ornamentation. Thumri is distinguished from the other Styles by its ornate character, embellishments of various kinds being used in it profusely and dexterously. It is on account of this ornate character that the Style attracts the mass mind most readily. Like Tappā this Style also is limited in its scope, as only a few Rāgas are used in it. The Rāgas mostly used are Kāfi, Piloo, Tilang and Bāroān in addition to those used in Tappā. These Rāgas have evidently been found to be most suitable for light treatment on account of some peculiar features of their structure. Craze for over-ornamentation often destroys the purity of even the small number of Rāgas used in this Style.

B. ESSENTIALS OF STYLE.

The essential elements of Style are form, rhythm, distinctive treatment of the final and semifinal notes and embellishment.

(a). Form (Bandha) :

Two methods of singing and playing melodies have been in vogue in India since ancient times. Shārngadeva

in his Sangîta Ratnākara speaks of two kinds of Gāna (melody) :

(1). **Anibaddha (without bandha)**
(2). **Nibaddha (with bandha)**

The Bandha referred to here signifies "Form". Formless melody (Anibaddha Gāna) was known as Ālapti or Ālāpa ; and melody with form was called Prabandha, Bandha or Rupaka[4]. Shārngadeva says that all the ten features of Rāgas (which are, according to him, the same as those of the ancient Jātis) are to be brought out in both these methods of execution. The difference between the two methods is stated to be that in the later the melody was divided into Vidāris or sections[5]. A number of these sections made up a period, which was called a Dhātu. The full number of Dhātus constituting a Prabandha was four. Some contained three or two. They were called Udgrāha, Melāpaka, Dhruba and Ābhoga. The modern Dhrupad (abbreviation of Dhruba-pada) is analogous to the ancient Prabandha or Rupaka. The four periods of Dhrupad are Āsthāyî, Antarā, Sanchārî and Ābhoga. The modern Āsthayî appears to be equivalent to the ancient Dhruba as the latter was used as the refrain like the former. The last period is still called Ābhoga. A period called Antarā was placed between Dhruba and Ābhoga in some Prabandhas. This is the second

4. " * * * * * अधुना गानमुच्यते ।
निबद्धमनिबद्धं तद् द्वेधा निगदितं बुधैः ॥
बद्धं धातुभिरंगैश्च निबद्धमभिधीयते ।
आलप्तिबन्धहीनत्वादनिबद्धमितीरिता ॥
* * * *
संज्ञात्रयं निबन्धस्य प्रबन्धो बन्ध रुपकम् ॥"

S. R. IV, 4-6

5. 'ग्रहांश-मन्द्रताराणां न्यासापन्यासयोस्तथा ।
अल्पत्वस्य बहुत्वस्य षाडवौडुवयोरपि ॥
अभिव्यक्तिर्यत्र दृष्टा स रागालाप उच्यते ।
रुपकं तद्वदेव स्यात् पृथक्भूतविदारिकम् ॥"

S. R. II, 2, 24-25

period of modern Dhrupads. The two periods Udgrāha and Melāpaka have been replaced by the Sanchārî period in modern Dhrupads. The character of the ancient periods, except that of the Dhruba, cannot be ascertained. There is no doubt that the character of the Rāga was especially exhibited in the Dhruba period, as in the modern Āsthayî, both being used as the refrain.

Absence of any strict rules of form in Ālāpa gives the singer of this Style utmost liberty of execution, which enables him to give full expression to the spirit of the Rāga. Ālāpa has, therefore, always held a very high position in the execution of Rāga melodies in Hindusthānî music. The liberty of performance in Ālāpa is, however, always pre-conditioned by due exhibition of all the Characteristic Features of the Rāga. In the best classical compositions of modern Hindusthānî music the Āsthāyî, which exhibits the Rāga in its true character, is confined with the limits of the mid-octave. The other three periods are variations with notes of the upper or the lower octave. The Antarā takes notes of the upper octave, starting from about the middle of the mid-octave and rising upto about the middle of the upper octave. The Sanchārî takes notes of the lower octave, descending upto about the middle of that octave. The Ābhoga is only a variation of the Antarā. The purpose of division of Dhrupad compositions into periods would be frustrated if these rules are not observed as far as possible. The Ābhoga period may, however, be dispensed with, as it is similar in structure to the Antarā. Mutilated forms of Dhrupad are often met with, in which the Sanchārî period is also left out. This is no doubt a sign of deterioration which aught to be carefully guarded against[6]. Singers in the Kheyāl Style adopted this mutilated form of Dhrupad Style in order to meet the requirements of that Style. They had to dispense with the Sanchārî period, because it is almost impossible to improvise quick Kartaba Tānas with the lower notes of the

6. Poet Tagore has adopted this ancient practice of Dhrupad singers, dividing most of his compositions into four periods.

voice-register. These notes of the lower octave, however, contribute largely to the grandeur and solemnity of the Dhrupad Style. Compositions of the Elegant Style (Tappā and Thumri) also contain only the two periods, Āsthayî and Antarā.

(b). Rhythm (Chhanda) :

Rhythm may be defined as movement with steps of unequal length or stress arranged in symmetrical order and periodic succession. Movement with steps of uniform length and stress as found in horse-trot or march of soliders does not constitute rhythm. The essence of rhythm is difference of length or stress in the steps of a movement. Variety is created by means of steps of different length or strength arranged symmetrically is different ways. Rhythms of music and poetry are very much similar to each other in these respects and are capable of being blended together, as observed in certain Styles of Hindusthānî music. In musical rhythm the stresses are put on the starting notes of the bars and in poetic rhythm they are placed on the first syllables of the feet. When music is combined with poetry, the stresses of the former are made to coincide with those of the latter.

(i). Musical Rhythm (Gîta Chhanda) :

Distinction between different Styles of Hindusthānî music is based mainly on difference of rhythmic arrangement of notes. These arrangements are regulated by two kinds of periodicity : cyclic and internal. In order to understand the difference of these arrangements so far as the rhythms of Hindusthānî music are concerned, the structure of the Tālas used in this music has to be examined A Tāla consists of a definite number of Mātrās or time-units divided into Padas or bars of equal or unequal length, each Pada consisting of two to four Mātrās. Bars of five or even seven or nine Mātrās are found to be used in some regions of India. But, these are too long for satisfying the rhythmic sense, and the mind has a natural inclination to subdivide them into shorter bars of two or three or four Mātrās. Bars of more than four units are

difficult to apprehend and are apt to be felt distasteful. Tālas containing such long bars are, in fact, incapable of producing real rhythmic effect[7].

Cyclic periodicity is obtained in rhythms used in Hindusthānî music by means of a especially strong stress or accent (Praghāta) on the first note of the cycle (Āvarta) of a Tāla. Periodic return of cycles is indicated by this accent, which marks the limit between two consecutive cycles. There can, therefore, be only one such especially strong accent in a particular Tāla. This is called "Sam", which is a an Atiguru Praghāta or super-strong accent. Gravity or lightness of a rhythm is determined by the length of the cycle. Long cycles are grave as the strongest accent Sam returns at long intervals. Quick return of this accent is the main cause of lightness of

7. The aforesaid limitation of the length of bars in the Tālas used in classical Hindusthānî music is analogaus to that of metrical feet in poetic rhythms of both European and Indian prosody. In ancient Greek and Latin prosody rhythm was based on two kinds of metric feet, which consisted of two and three syllables. These syllables were either long or short. In a disyllabic foot one or both the syllables might be either long or short; and in a trisyllabic foot only one of the syllables might be long A short syllable being taken to be equivalent to a Mātrā and a long one to two, a pyrrhic foot, consisting of two short syllables, was equivalent to two Mātrās; a trochee and an iambus, each consisting of two syllables, of which the first and the second were long respectively and the other short, were equivalent to three Mātrās; a spondee consisting of two long syllables, was equvalent to four Mātrās and a dactyl, an amphibrach and an anapaest, each consisting of three syllables, of which the first, the second and the third were long respectively and the other two short, were equivalent to four Mātrās. It will thus be seen that in Greek and Latin prosody metric feet of only two, three and four Mātrās were recognised. In English prosody metric feet named trochee, iambus, dactyl, amphibrach and anapaest are used; but, their ancient characters have been completely changed Length of syllables is of no account in English poetry and the long and the short syllables of Greek and Latin poetry have been substituted by accented and unaccented syllables respectively. The first two of the aforesaid five metric feet are, therefore, equivalent to two Mātrās and the remaining three to three Mātrās. Feet of four Mātrās are not recognized in English prosody.

rhythms. In the Grand Style Dhrupad the cycles are longest, the Tālas used in it consisting normally of twelve to twentyfour Mātrās and in the light Style Thumri, the cycles are shortest, the Tālas in them containing four to eight Mātrās. Longer cycles are sometimes found to be used in Dhrupad. But, these are too long for apprehension by the rhythmical ear and are useless for practical purposes.

Internal periodicity is obtained in the rhythms of Hindusthānî music by means of two kinds of Praghātas which are weaker than the Sam. These are called Tāli and Khāli or Phānk. The former is a Guru Praghāta or strong accent and the latter a Laghu Praghāta or weak accent. These accents are placed in a regular order on the initial note of the Padas constituting a Tāla. The Ati-guru Praghāta Sam is counted as equivalent to a Guru Praghāta in the distributian of accents.

Cycles of rhythmic structure, on which the Tālas of Hindusthānî music are based, are of four categories, consistiag of two, three, four and six Padas. These can, therefore, be divided into four groups. The first and the third of these groups include six cycles each and the second and the fourth groups include ten cycles each. The cycles included in the first and the second groups are In length exactly half of the corresponding cycles of the third and fourth groups respectively. In order to secure internal periodicity in a cycle it is required that accents of different strength should recur at regular intervals within the limits of the cycle. This would be possible only in a cycle which is divisible into two equal parts exactly similar in structure. There are some Tālas of Hindusthānî music which are not so divisible. These are included in the first two of the aforesaid four groups. Tālas based on these cycles must be repeated twice in order to secure internal periodicity. They are obtained by putting a super-strong accent on the initial notes of each of the two halves of the corresponding cycles of the other two groups. The rhythms of the cycles of the first and the second groups are the same as those of the

corresponding cycles of the third and the fourth groups, the only difference being that they are rendered light in character in comparison with the cycles of the latter two groups by repeating the super-strong accent twice within one period of the cycle of those groups.

The groups which include cycles of two, three, four, and six Padas have been designated A, B, C, and D respectively.

Cycles of group A, consisting of two Padas each, are either Sama-Padî having Padas of equal length or Vishama-Padî having Padas of unequal length. If the integers 2, 3 and 4 be taken to represent Padas of two, three and four Mātrās respectively, there would be three Sama-Padî cycles in this group, represented by the integers 2, 2 ; 3, 3 and 4, 4 ; and three Vishama-Padî cycles represented by the integers 3, 2 ; 4, 2 and 4, 3. There would thus be altogether six cycles in this group.

Cycles of group B, consisting of three Padas each, are also either Sama-Padî or Vishama-Padî. There would be three Sama-Padî cycles in this group represented by the integers, 2, 2, 2 ; 3, 3, 3 and 4, 4, 4 ; and only one Vishama-Padî cycle, consisting of Padas of different lengths, represented by the integers, 4, 3, 2. If two of the three Padas be of equal length, there would be six Vishama-Padî cycles, represented by the integers, 3, 2, 2 ; 3, 3, 2 ; 4, 2, 2 ; 4, 4, 2 ; 4, 3, 3 and 4, 4, 3. There would, thus be altogether ten cycles in this group.

The cycles of groups C and D are divisible into two exactly similar halves which are identical with the corresponding cycles of groups A and B. In other words, the numbers of Padas in the cycles of groups C and D are double those of corresponding cycles of groups A and B respectively.

The super-strong accent (Sam) which marks the limit between two consecutive cycles (Āvarta) of a melodic composition is placed on the first Pada of a cycle. The strong accents should, as a rule, be placed on long Padas and weak accents on short Padas. This salutary rule is,

however, often violated in actual practice. In cycles of groups A and C, which consist of two and four Padas respectively, the strong and the weak accents are placed on alternate Padas. In cycles of groups B and and D, which consist of three and six Padas respectively, a weak accent is placed between two strong accents. At the time of repetition of cycles a weak accent appears after two strong accents. According to the aforsaid rules, Sam is placed on the first Padas of all cycles and Tāli is placed on the third Padas of the cycles of groups B and C ; and on the third, the fourth and the sixth Padas of those of Group D. Khāli is placed on all the remaining Padas of all the cycles.

The cycles of the four Groups are shown below in a serial order according to the total number of Mātrās contained in them. Mātrās are represented by the letter S ; and Sam, Tāli and Khāli by the signs +, /, and 0 placed over S. Padas are separated by means of short vertical lines.

(Cycles overleaf)

CYCLES OF RHYTHMIC STRUCTURE.

GROUP A.

Six Cycles of two Padas :

1. Four Mātrās — | $\overset{+}{S}$ S $\overset{0}{S}$ S |
2. Five Mātrās — | $\overset{+}{S}$ S S | $\overset{0}{S}$ S ||
3. Six Mātrās — | $\overset{+}{S}$ S S S | $\overset{0}{S}$ S ||
4. Six Mātrās — | $\overset{+}{S}$ S S | $\overset{0}{S}$ S S |
5. Seven Mātrās — | $\overset{+}{S}$ S S S | $\overset{0}{S}$ S S |
6. Eight Mātrās — || $\overset{+}{S}$ S S S | $\overset{0}{S}$ S S S ||

GROUP B.

Ten Cycles of three Padas :

1. Six Mātrās — $\overset{+}{S}$ S | $\overset{0}{S}$ S $\overset{/}{S}$ S ||
2. Seven Mātrās — || $\overset{+}{S}$ S S $\overset{0}{S}$ S | $\overset{/}{S}$ S |
3. Eight Mātrās — | $\overset{+}{S}$ S S S $\overset{0}{S}$ S | $\overset{/}{S}$ S ||
4. Eight Mātrās — || $\overset{+}{S}$ S S | $\overset{0}{S}$ S | $\overset{/}{S}$ S S ||
5. Nine Mātrās — | $\overset{+}{S}$. S S S | $\overset{0}{S}$ S | $\overset{/}{S}$ S S ||
6. Nine Mātrās — | $\overset{+}{S}$ S S | $\overset{0}{S}$ S S | $\overset{/}{S}$ S S |
7. Ten Mātrās — || $\overset{+}{S}$ S S S | $\overset{0}{S}$ S | $\overset{/}{S}$ S S S ||
8. Ten Mātrās — || $\overset{+}{S}$ S S S | $\overset{0}{S}$ S S | $\overset{/}{S}$ S S |
9. Eleven Mātrās — | $\overset{+}{S}$ S S S | $\overset{0}{S}$ S S | $\overset{/}{S}$ S S S |
10. Twelve Mātrās — || $\overset{+}{S}$ S S S | $\overset{0}{S}$ S S S | $\overset{/}{S}$ S S S ||

GROUP C.

Six Cycles of four Padas :

1. Eight Mātrās — || $\overset{+}{S}$ S | $\overset{0}{S}$ S | $\overset{/}{S}$ S | $\overset{0}{S}$ S ||
2. Ten Mātrās — || $\overset{+}{S}$ S S | $\overset{0}{S}$ S | $\overset{/}{S}$ S S | $\overset{0}{S}$ S ||
3. Twelve Mātrās — | $\overset{+}{S}$ S S S | $\overset{0}{S}$ S | $\overset{/}{S}$ S S S $\overset{0}{S}$ S |
4. Twelve Mātrās — | $\overset{+}{S}$ S S | $\overset{0}{S}$ S S | $\overset{/}{S}$ S S | $\overset{0}{S}$ S S |
5. Fourteen Mātrās — || $\overset{+}{S}$ S S S | $\overset{0}{S}$ S S | $\overset{/}{S}$ S S S | $\overset{0}{S}$ S S ||
6. Sixteen Mātrās — || $\overset{+}{S}$ S S S | $\overset{0}{S}$ S S S | $\overset{/}{S}$ S S S | $\overset{0}{S}$ S S S ||

GROUP D.

Ten Cycles of Six Padas :

1. Twelve Mātrās – | S S | S S | S S | S S | S S | S S |
2. Fourteen Mātrās – | S S S | S S | S S | S S S | S S | S S |
3. Sixteen Mātrās – | S S S S | S S | S S | S S S S | S S | S S |
4. Sixteen Mātrās – | S S S | S S | S S S S | S S S | S S | S S S |
5. Eighteen Mātras – | SSSS | SS | SSS | SSSS | SS | SSS |
6. Eighteen Mātrās – | SSS | SSS | SSS | SSS | SSS | SSS |
7. Twenty Mātrās – | SSSS | SS | SSSS | SSSS | SS | SSSS |
8. Twenty Mātrās – | SSSS | SSS | SSS | SSSS | SSS | SSS |
9. Twenty-two Mātrās – | SSSS | SSS | SSSS | SSSS | SSS | SSSS |
10. Twenty-four Mātrās – | SSSS | SSSS | SSSS | SSSS | SSSS | SSSS |

There is internal periodicity in all the cycles of the Groups C and D. The cycles Nos. 2, 3 and 5 of Group A and all the cycles of Group B are to be repeated twice in order to have internal periodicity.

The Tāla of Hindsuthānî music based on cycle No. 1 of Group A is called Kāhārbā (Kārfā in Bengal and Kerbā in Mārhattā). No Tāla based on cycle No. 2 of this Group is in actual use. Such a Tāla can, however, be brought to use as a light form of Jhāmptāla, which is based on cycle No. 2 of Group C. The South Indian Tāla named Charka is based on this cycle. The Tāla Patti of that school is based on cycle No. 3 of this Group. The Tālās Dādrā and Kāshmîrî Khemtā of Hindusthānî music are based on cycle No. 4 of this Group. No Tāla based on cycle No. 5 is found to be in use. The Pada of four Mātrās of this cycle is apt to be split up into two Padas of two Mātrās each, thus reducing it to cycle No. 2 of Group B, which includes several Tālas. The Tāla Thumri, on which songs of the Style named after it are mostly composed, is based on cycle No. 6 of this Group.

No Tāla based on cycle No. 1 of Group B is found to be in use. A light form of Chautāla based on a cycle which is double of this cycle can be brought to use. The three Tālas named Teebra (Teora), Rupaka and Pastu (Postā in Bengal), which is used in Gazal, are based on cycle No. 2 of this Group. The South Indian Tāla Shankha is also based on this cycle. There is no Hindusthānî Tāla based on cycle No. 3. The South Indian Tāla Ādi is based on it. The Tāla Rupakḍā of Hindusthānî music is based on cycle No. 4. The South Indian Tāla Sāra is also based on this cycle. No Tāla based on cycle No. 5 is found to be in use. The Tāla Dushkara of South Indian music with Padas of 5, 2, and 2 Mātrās, can be based on this cycle if it is modified so as to make the Mātrās of its Padas 3, 4 and 2. The Hindusthānî Tāla called Soolatalā (Surphāktāl in Bengal) is based on cycle No. 7. No Tālas in cycles Nos. 6, 8 and 9 are found to be in use. A Tāla miscalled "Ektāla" based on cycle No. 10 is used by most Kheyāl singers in singing Kheyāl songs in slow tempo before singing them in quick tempo in Tritāla. It must be doubled in order to secure internal periodicity. This form of Ektāla is practically Shat-Padî. It may be considered as a light form of Chautāla used in the Dhrupad Style. As such it imparts to Kheyal songs some of the gravity of that Style.

Of Group C cycle No. 1 is the basis of Āddhā or Āddhā Kāwāli of Hindusthānî music. Jhāmptāla is based on cycle No. 2. Chakra Tāla of South India can be based on this cycle, if it is doubled and properly accented. No Tāla based on cycle No. 3 is found to be in use in Hindusthānî music. Patti Tāla of South Indian music, doubled and properly accented, can be based on this cycle. The Tālas called Ektāla and Khemtā in Bengal are based on cycle No. 4. Deepchandî, Jhumrā and the Tālas called Jat and Teot in Bengal are based on cycle No. 5. Tritāla (Kāwāli in Bengal), Tilwādā (Āḍatheka in Bengal) and Pānjābî are based on cycle No. 6. All Tālas based on the cycles of Group C can be used in the Kheyāl Style of Hindusthānî music. Some of them are used in what

is known as the "Great Kheyal", which is usually sung by musicians of the Gwalior school. In the "Little Kheyāl" which is more widely prevalent, all Tālas except Tritāla or Kāwāli have been discarded. Tālas of unequl Padas (Vishama-Padî) were originally used in Kheyāl Style. These appear to have been abandoned when improvisation of Kartaba Tānas come to be regarded as one of the most important features of the Style, evidently because unequal length of of Padas in Tālas were considered to be incompatible with improvisation of Tānas in quick *tempo* (Druta Laya). Eminent Kheyāl singers are, however, found to use such Tālas in starting songs in slow tempo (Bilambita Laya) and to use Tritāla in concluding them in quick tempo (Druta Laya), in which Tānas are profusely improvised. The form of Ektāla consisting of four Padas of three Mātrās each based on cycle No. 4 of Group C, which is the orginal form of this Tāla, has been almost discarded in Kheyāl Style.[8]. The only

8. Much confusion exists regarding the character of Ektāla. It is found to be used in three different forms : Tri-Padî (of three bars), Chatush-Padî (of four bars) and Shat-Padî (of six bars). Of these the first is unrhythmical as there can be no internal periodicity in a cycle of uneven number of bars. The third form of six bars is indistinguishable from Chautāla. The second form of four bars is the only one which is practically useful, as it possesses a distinctive character. It is the only cycle consisting of bars of three Mātrās which is suitable for the higher Styles. It is, however, an unfortunate fact that this Trî-Mātric Chatush-Padî form of Ektāla has been almost abondoned in Hindusthānî music. In all compositions in Ektāla found in Western India it is used as a cycle of six bars of twe Mātrās each. This state of things is observed in all the works of Bhatkhande and those of Vishnu Digambar Paluskar published from Nasik (Bombay). This form of Ektāla, which is used in Kheyāl, is similar in all respects to Chautāla, which is used in Dhrupad, though the Thekā for Tablā and that for Pākhwāj are different. In the book 'Sangeet Prabesh' (1936) published from Gwalior, the author Krishna Row Shankar Pandit, Principal of Shankar Gāndhava Vidyālaya of Gwalior, makes a distinction between Chautāla and Ektāla by placing the weak accents (Khāli) on the second and the fourth bars in Chautāla as usual, and on the third and the fifth bars in Ektāla. Both these methods

reason for this seems to be that it is considered rather difficult to improvise Tānas in songs composed in a Tāla consisting of Padas of three Mātrās. Although Ektāla in its

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of distribution of accents are, unrhythmical. Almost all classical composition in this Tāla found in the books of Bengal are based on a cycle of three bars of four Mātrās. Krishnadhan Banerji states in Geet Sutra Sāra that this Tāla is in reality Tri-Mātric Chatush-Padî, but Ostads (expert musicians of Western India) have shown some ingenuity by converting it to a Chatur-Mātric Tri-Padî Tāla. The author seems to have ignored the fact that this conversion has quite changed the rhythmic character of the Tāla. He gives the same Thekā for both the forms of the Tāla and distinguishes the two by different distribution of the bars and the accents thus :—

Ektāla (Tri-Mātric)

| Dhin: Dhin: Dhā: | Dhā: Thun: Nā: |
| Kaṭ: Ṭe: Dhāge: | Ṭetekeṭe: Dhin: Dhā: |

Ektala (Chatur-Matric):

| Dhin: Dhin: Dhā: Dhā: | Thun: Nā: Kaṭ: Ṭe: |
| Dhāge: Ṭetekeṭe: Dhin: Dhā: |

The author further states that the same Tāla may be converted to Chautāla in the following way :—

Chautāla :

| Dhin: Dhin: | Dhā: Dhā: | Thun: Nā: |
| Kaṭ: Ṭe: | Dhāge: Ṭetekeṭe: | Dhin: Dhā: |

He then observes that these three forms are only different variations of Ektāla. No significance is attached by him to the syllables used in the Thekās of Tālas. For, the same syllable is found to be accented in one form and unaccented in another. But perhaps the author is not to blame for this confusion. The very principles on which the Thekās are devised appear to be loose and uncertain.

Krishnadhan Banerji, following the lead of some musicians of Hindusthān uses the Chatur-Mātric Tri-Padî form of Ektāla in the classical compositions given in his book, though in his opinion the Tāla is essentially Tri-Mātric in character. The same form of Ektāla is also used by Raja Sourindra Mohan Tagore in his Yantra Kshetra Dîpikā (1890) and by Kshetra Mohan Goswami in his Kantha Kaumudî.

Tri-Mātric form has almost disappeared from Hindusthānî music in western India, it is frequently used in Bengal, especially in popular Bengali songs.

Most of the Tālas based on cycles of Group C must have been used in the Kheyāl style until improvisation of Kartaba

Gopeshwar Banerji makes in his Sangeet Chandikā, Vol. I (1909) the rather ambiguous statement that Ektāla is a Chatur-Mātric Tri-Padî Tāla, but the Thekā becomes easier if it is made a Tāla of four Padas of three Mātrās, and then gives a Thekā which is almost identical with the first form of the Tala given above. He gives no separate Thekā for the Chatur-Mātric form of the Tāla. He was probably conscious of the inconsistency involved in the use of the same Thekā for two different forms of the Tāla. That he believed the Tri-Mātric to be the correct form of the Tāla is evident from the fact that he used this form in all the Bengali songs given in his Geeta Mālā (1923). It is a notable fact that this is the only form of the Tāla which is used in the popular songs of Bengal. This author, however, following like those preceding him the lead of some musicians of western India, used the Chatur-Matric form of the Tāla in all his works written between 1909 and 1927. In his Geeta Darpan written 1932, he gives two songs composed by Ādārang and Achapala (pp. 4 and 12), in which the Tri-Mātric form of Ektāla is used by him. A song composed by Achapala is found in his Sangeet Laharî (1927), in which the Chatur-Mātric form of Ektāla is used. Two forms of the same Tāla are thus attributed to the same composer Achapala. It is impossible to ascertain which of the two forms was actually used by the composer. Nevertheless, no difficulty was felt by the author in converting the rhythmic Chatush-Padî form of the Tāla to the unrhythmic Tri-Padî form. Dilip Kumar Roy, in his illuminating observations on the structure of Tālas in the introduction of his book "Geeta-shrî" noticed the irrational use of the Shat-Padî form of Ektāla and expressed the hope that the authorities of the music scools of Lucknow and Gwalior established by pandit Bhatkhande would make the suggested correction in the books published by them.

The real problem, however, which arises out of these different forms of Ektāla is whether its Tri-Matric form is suitable for the Kheyāl Style or not. There is no doubt that this was the original form of the Tāla, which was used in the earliest stage of this Style. Tānas are given in the above-mentioned two compositions in Tri-Mātric Ektāla by Ādārang and Achapala found in Gîta Darpan. There is, therefore, no reason why this Tāla should not be more widely used in Kheyāl Style.

Tānas came into vogue. Growing popularity of these Tānas necessitated exclusion from this Style of those Chatush-Padî Tālas which contained unequal Padas. A class of Kheyāl singers called "Kāwāl, who at the time of Ameer Khusru came to prominece through his patronage, confined their compositions of Kheyāl to the Chatur-Mārtic Chatush-Padî Tāla based on cycle No. 6 of Group C. This Tāla, which is identical with the ancient Tritāla, came to be called "Kāwāli" after the aforesaid class of musicians. Quick improvisation of Kartaba Tānas was regarded as the most important characteristic of Kheyāl by these musicians. The inevitable consequence was exclusion of some Rāgas from this Style and disfiguration of some others. The decadence of the modern "Little Kheyāl" is to be attributed to the Kāwāl singers. The "Great Kheyāl" Style with its richness in Rāgas and Tālas must be revived and popularized if Kheyāl is to be raised from its present decadent condition.

The Tāla named Chautāla, which is mostly used in the Dhrupad Style of Hindusthānî music is based on cycle No. 1 of Group D. Tāla Dhāmār, also frequently used in that Style, is based on cycle No. 2 of the Group[9]. No Tāla in cycle No. 3 has been found to be used in Hindusthānî music. Ādi Tāla of South India can be included in this cycle if it is doubled and accented according to it. Tāla Rupakḍa based on cycle No. 4 of Group B can be used in the Dhrupad Style if it is doubled and accented according to cycle No. 4 of Group D. No Tāla based on cycle No. 5 of this Group has been found to be in use. Soola-tāla (Sur-phāktāl), which has been included in

9. In the books of Bhatkhande Dhāmār is divided into five Padas, of which the first consists of five Mātrās : thus : 5 ; 2, 3, 2, 2. This division into an uneven number of Padas is unrhythmical. Bars of five Mātrās are found nowhere in the musical rhythms of Hindusthānî music. In the books of Bengal too the Tāla is divided into five Padas, the last bar consisting of four Mātrās, thus : 3, 2, 2, 3, 4. The bar of five Mātrās has to be divided into two bars of three and two Mātrās in one case and the bar of four Mātrās into two bars of two Mātrās each in the other in order to make the Tāla rhythmically perfect.

Group B, is found to be used in the Dhrupad style. It should be doubled and accented according to cycle No. 7 of Group D, in order to make it suitable for that Style. No Tālas based on cycles Nos. 6, 8 and 9 are found to be in use.

The total number of Mātrās contained in cycle No. 10 of this Group is double of that of cycle No. 1, the Padas of the former being in size double of those of the latter. Chautāla can be based on either of these cycles. That based on cycle No. 10 should, therefore, be termed "Purna Chautāla", in order to distinguish it from that based on cycle No. 1, which should be called "Ardha Chautāla". Chautāla is popularly believed to be a Tāla consisting of Padas of two Mātrās. But, from the manner in which it is played on Mridanga and from the strokes of Vînā when played in Chautāla, it appears that this Tala, as customarily used, consists of Padas of four Mātrās.

Three of the Tālas used in Hindusthānî music are disignated in terms of numbers of Tālis or strong accents, viz. Ektāla, Tritāla and Chautāla. These names indicate that the Tālas contain one, three and four Tālis respectively. Tritāla and Chautāla are found to contain the number of strong accents their names indicate. But, the allocation of the accents in Chautāla is unrhythmical and the so-called Tritāla contains two strong accents and not three. Tritāla should, therefore, be properly termed "Dvitāla". The name "Ektāla" is a misnomer, as none of the three forms of this Tāla contains only one Tāli.

It is misleading and useless to designate Tālas in accordance with the number of Tālis contained in them, because all the Tālas based on cycles of a particular Group contain the same number of Talis. The name "Ektāla" would, accordingly, include all Tālas based on cycles of Group A, "Dvitāla" would include all Tālas based on cycles of Group B and C, and "Chautāla" would include all Tālas based on cycles of Group D. This nomenclature would only create confusion. Every Tāla should, therefore, have a distinct name without any reference to the number of Tālis it contains.

It is very difficult and often impossible to ascertain the accents of a Tāla from the Thekās (syllabic stroke-symbols

for drums). Different Thekās are found to be used for the same Tāla in different parts of the country. This circumstance would not have presented any difficulty if there were fixed rules for ascertaining the significance of the syllables used in the Thekās. In the absence of such rules it is impossible to ascertain whether these Thekās stand for a Tāla of the same rhythmic character or not. Some amount of uniformity is found in respect of the super-strong accent (Sam), which is usually placed on the aspirate syllable Dhā. A notable exception is seen in the Thekā of the well-known Tāla Dhāmār, in which that accent is placed on the syllable Ka. The use of Dhin for that accent in some Tālas need not be considered an exception, as it contains the aspirate consonant Dh (ध), which is included in the syllable Dhā ordinarily used for the Sam. In the Kirtan style of music of Bengal, the syllable used for Sam is Jhā. It contains an aspirate consonant like the Sam of Hindusthānî music. It, thus, appears that an aspirate consonant is considered best suited for the Sam. Only seven consonants are ordinarily used for the stroke-symbols in Hindusthānî music. These are : K (क), G (ग), Gh (घ) Ṭ (त), D (द), Dh (ध), and N (न), Of these the first three are Gutturals and the last four dentals. Palatals and labials are never used. Only one of the cerebrals, viz. T (ट), is occasionally used. Of the seven consonants oridnarily used the two aspirates Gh (घ) and Dh (ध) should be used for Sam (super-strong accent). The two consonants G (ग) and D (द) should be used for Tāli (strong accent) and the remaining three consonants K (क), Ṭ (त) and N (न) for Khāli (weak accent). Thekās would be made unambiguous and universally useful if these rules were followed in constructing the Thekās. These rules should be applicable only to the first syllables of Padas, which are accented. Other syllables of Padas are devoid of any accent.

The Thekā for Chautāla is shown below by way of example. The customary Thekā for that Tāla is :—

‖ Dhā Ge | Din Ṭā | Kaṭ Ṭāge | Din Ṭā |

Ṭita Kaṭa | Gadi Gana ‖

Corrected according to the afore-said rules it should stand thus :—

‖ Dhā Ge | Ṭin Ṭā Gaṭ Ṭage | Din Ṭā |

Ṭita Kaṭa | Gadi Gana |

The first syllables of only two of the six Padas, the second and the third, have to be altered to Ṭ (ट) and G (ग).

Tālas of different names with different Thekās are found to be based on the same cycle. For example, Tālas Jhumrā, Deepchandi, Jat and Teot, are all based on cycle No. 5 of Group C. It is difficult to explain this difference of names. Apparently they stand for the same Tāla, for which different names and Thekās are used in different localities. They would stand for different Tālas, either if the positions of their superstrong accents (Sam) are found to be different, or if they are found to be associated with different poetic rhythms.

(ii). Poetic Rhythm (Kāvya Chhanda) :

Vānî (wording) is considered to be one of the most imporant elements in the Dhrupad Style of Hindusthānî music. This indicates that the Style is intimately associated with language, which is usually in poetic form. That association should not, however, be understood to convert songs of this Style into what have been called "Poetic songs." The compositions of this Style are, in fact, not poetic at all in the true sense of the term. Most of the classical songs are prayers to or praises of the Deity and the divine incarnations. They were originally intended for devotional purposes and sung in temples and prayer halls. Subsequently mundane subjects were introduced and court-musicians sometimes stooped to compose songs in praise of their patron sovereigns. These songs were, always bereft of abstruse or thought-provoking subjects calculated to detract the mind from the Rāga-patterns, which were their sole objectives. The main purpose of the compositions was to heighten the beauty of musical rhythm by its judicious blending with poetic rhythm. Words have no intrinsic value in classical composition. This is evident from Tārānā songs in which only

some meaningless combinations of syllables are used. These syllables are formed by combination of a few soft consonants with some vowels. The syllables are combined to form disyllabic or trisyllabic groups, which are meaningless as words. In these Tārānā songs the hamper of language is eliminated and the Rāgas are presented in their purest forms. Similar and fewer soft syllables are used in the Ālāpa Style which is free from the bondages of rhythm and language.

The only two elements of poetry with which classical Hindusthānî music is especially concerned are its mellifluous language and its rhythm. Words of any language which are free from harsh consonants can be used for a Rāga melody. Indications have been given in a preceding chapter about the class of consonants which are suitable for words to be used in truly melodious music. The problem of blending the two rhythms is more difficult, inasmuch as they are based on different though similar elements. Musical rhythms are based, as shown above, mainly on bars (Padas) or groups of notes of different length and accents of different strength demarcating the bars from each other. Poetic rhythms are, on the other hand, based on feet (parvas) or groups of syllables of different length and either caesuras (Yatis) or accents (Praghātas) demarcating the feet from each other. They are, therefore, of two kinds: quantitative and accentual. The rhythm of all ancient classical poetry in Sanskrit, Greek and Latin and those of the poetry of modern Indian languages are mostly quantitative in character. Accents have little place in these rhythms. The rhythms of the poetry of most of modern European languages are, on the other hand, considered to be accentual in character. Difficulties of different kinds have to be faced in trying to blend these two classes of poetic rhythm with musical rhythm. In the attempt to combine quantitative rhythms of poetry with rhythms of music, which are essentially accentual in character, the fact has to be confronted that caesuras, which are indispensable for quantitative poetry, have a very limited use in music. Break in the continuity of sound, which is of utmost imporance in

music is allowable only at the close of a complete melodic phrase. They not only serve the purposes of distinguishing the phrases from each other, but are also needful to a singer as breathing places. The vocalist stops singing for a moment in order to take fresh breath and the instrumentalist holds up his plectrum or bow on ending a phrase and before beginning the next. These breaks of music are analogous to the caesuras (lit. breaks) of poetry. But, they cannot be used for demarcating the bars, which are analogous to the feet of poetry. Bars of music have to be demarcated by means of accents, which have no place in quantitative rhythms of poetry. Syllabic stresses, which are often used with great emotional effect in poetry, can, however, be made to serve the purpose of accents on notes of music. Two kinds of stresses can be used in poetry. Weak stresses have the short duration of a single syllable and strong ones a longer duration of two syllables. The break after a melodic phrase, spoken of above, tends to emphasise the first note of the succeeding phrase. This note, which is usually a central note of the Scale, has to be marked out by a strong accent. The first syllable of the verbal phrase, which is to synchronize with a melodic phrase, is to be strongly stressed in order to make it coincide with the strongly accented first note of that melodic phrase. This strong stress must be placed on a long syllable. As breaks are not possible within a melodic phrase, the caesuras between the feet of the corresponding poetic phrase must be displaced by stresses. These stresses are to be put on the first syllables of the feet of the poetic phrase in order to make them coincide with the accents on the first notes of the bars of the melodic phrase. Strong accent or stress on a short note or syllable followed by another short note or syllable is a source of lightness, which may degenerate into vulgarity. It should, therefore, be avoided as far as possible.[10]

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10. Accents of different strength can be exhibited in drums, pianos and stringed instruments played by means of plectrums. They can not be shown in human voice, harmo-

Syllabic stresses, unlike accents, which may be likened to momentary strokes of a hammer, have quantity and are measurable in time. Stresses of different strengths can be made to coincide with accents of different strengths placed on notes of different lengths. There need, therefore, be no difficulty in blending poetic rhythms of the quantitative type with musical rhythms if stresses are judiciously used in words of poetry.

Rhythms have been divided into two classes in Sanskrit prosody : Vritta and Jāti. Both of them are quantitative in character. In the former the rhythms are regulated by the number of Varnas or syllables ; and in the latter they are regulated by the number of Mātrās or syllabic instants. One Mātrā is equivalent to the time occupied in pronouncing a single short syllable, which is considered to be the unit. A long syllable is equivalent to two short syllables and has, therefore, the duration of two Mātrās. A rhythm of the Jāti class consists of a definite number of Mātrās. Its time-length is, therefore, constant. Quantitative rhythms of this class can be adjusted to musical rhythms, in which Laya or constancy of time-length of a rhythmic cycle is of utmost importance. Those rhythms of the Vritta type are also adjustable to musical rhythms, in which lengths of syllables are taken into account, so that the total time-lengths of their meters can be definitely ascertained.

All poetic rhythms are, in fact, quantitative in character. Even those rhythms of modern Europe which are considered

niums and stringed instruments in which bows are used. Stresses have, therefore, to be used in them in place of accents. Vocal stress on a short vowel followed by two consonants without a vowel between them is naturally strong and has the semblance of a strong accent. E.g, falter, pendant, pigment, sordid, hunter. In Sanskrit grammar a *laghu varna* (short syllable) followed by a *yukta akshara* (combined consonant) is considered as a *guru varna* (long syllable). E g., *vastu*, *kānda*, *rikta*, *durvala*, *netra*, *gotra*. These syllables are naturally pronounced with a stress which simulates an accent. The word *guru* (literally, heavy) is suggestive of an accent.

to be accentual are also quantitative, inasmuch as they are regulated by the number of their syllables. They belong to the Vritta type. As lengths of syllables are not taken into account in them, they cannot be adjusted with musical rhythms, unless all the syllables in them are taken to be equal in length. This means that the distinction of syllables as long and short has to be obliterated.

A further difficulty with regard to these rhythms is that the accents of the words of those languages in which they are used are fixed and too numerous, almost every word being provided with one or two accents. As accents of musical rhythms must occur regularly on every second or third or fourth note, it is not possible to accomodate them to the accents of the aforesaid languages unless some of them are obliterated.

Most of the Tālas used in the Grand (Dhrupad) Style of Hindusthānî music are based on the cycles of Group D, which are best suited for that Style. The rhythms of these cycles are grave and lofty in character and are analogous to the rhythm of hexameter verse in which the great Greek and Roman poets Homer and Dante wrote their immortal epics. The peculiar character and excellence of this meter of six feet is attributable to the circumstance that a balance between uniformity and variety can be created in it by means of the two primary numbers two and three, of which one is even and the other uneven. The whole meter is divisible into the even number (two) of parts, and each half again is capable of being divided into the uneven number (three) of parts, which can give rise to many variations in their length and position. Regularity and periodicity are attainable by simply making the two halves similar in structure. This is one of the principles underlying the structure of the cycles of Group D, on which the Tālas used in the Dhrupad Style are based. The musical rhythms of this Style are associated with the quantitative kind of poetic rhythms. All ancient classical poetry whether in Europe or in India was written in this kind of rhythms. Verses of this class of poetry are apt to be

monotonous, if the rhythmical feet are all of equal length. This monotony can be removed by the use of stresses or accents of different strengths placed at regular intervals. Such procedure has been adopted in the structure of Chautāla of the Dhrupad Style. Three kinds of accents of different strengths have been called into requisition for this purpose. The super-strong accent (Sam) has been used only for securing periodicity of the consecutive cycles of the Tāla in its totality. The strong accent (Tāli) is placed on the first and the third bars of each half, and the weak accent (Khāli) on the bars which come between them. The super-strong accent is treated as a strong accent for this purpose. By this procedure monotony is avoided without disturbing periodicity within the cycle. This accentual treatment is essential for cycles Nos : 1, 6, and 10 of Group D, in which the bars or feet are equal in length. The other seven cycles can stand on quantitative treatment alone, as the bars or feet of these cycles are distinguishable from each other by means of their lengths[11]. Such treatment is, however, possible only when the cycles are used in poetry in which the feet can be separated from each other by means of caesuras. In music they must be treated accentually also, because the bars of music have to be separated from each other by means of accents instead of caesuras, which are not allowable in music. This double treatment makes the rhythms of Dhāmār, Soola-tāla and Rupakḍā more prominent than that of Chautāla.

Chautāla is customarily considered to be a Tāla of twelve Mātrās, divided into six bars of two Mātrās each. It is, however, practically a Tāla of twenty-four Mātrās. This will appear from the number of syllables used as stroke-symbols for drums in two of its bars (ṭi-ta ka-ṭa and ga-ḍi ga-na). Each of the bars accordingly consists of four Mātrās. As such this Tāla is to be equated with the Greek dactylic hexameter, which also consists of twenty-four Mātrās, each of the six dactyls (or spondees) being equivalent to four Mātrās. The

11. It is evidently for this reason that difference in strength of accents has found no place in South Indian Tālas, in which bars of equal length are seldom used.

rhythms of the other cycles of Grup D are variants of the rhythm of the classical hexameter. These are arrived at by varying the lengths of the three bars of each half of the cycle. As consecutive weak accents make a rhythm feeble and ineffective, a Pada with weak accent is usually placed between two strongly-accented Padas. There must, therefore, be only one bar with weak accent in each half of three bars. The total number of strong accents (Tāli) in a whole cycle is, therefore, four. This accounts for the name "Chautāla", which is equally applicable to all Tālas based on the cycles of Group D. Weak accents should, as a rule, be placed on the shortest bars.

If the second and the fifth feet of the Greek dactylic or spondaic haxameter are replaced by pyrrhic feet, we get a rhythm which is equivalent to that of Soola-tāla (doubled) based on cycle No. 7 of Group D. This cycle, which consists of twenty Mātrās, is slightly shorter than the classical hexameter, but free from the monotony inherent in it. In its poetic setting it may be made to consist of four dactyls and two pyrrhics. For musical purposes the first long syllables of the dactyls or spondees are to be strongly stressed and the first short syllables of the pyrrhics are to be weakly stressed[12].

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12. Shri Arobindo has expatiated on the beauty and grandeur of the classical hexameter verse and has attempted to naturalize it in English poetry by his great poetic work "Savitrî". Conscious of the inherent monotonous character of this meter he has pointed out that this need not stand in the way of its adoption, as it can be obviated by a skilfull writer by means of certain devices. These include introduction of caesuras and pauses in appropriate places and modulations of the rhythmic feet of the meter. These devices are, however, not possible if the rhythm of this meter has to be combined with that of music. Continuous flow of sound, which is essential for good music is apt to be hampered by caesuras and pauses. The function of the caesuras in demarcating the feet of poetry is performed by the strong or the weak accent in demarcating the bars of Hindusthānî music, and that of the pauses in demarcating the lines of poetry is performed by the super-strong accent in demarcating the āvartas (cycles) of Hindusthānî music. As regards modulations, such of them as are irregular and disturb the uniformity of length of the cycle are not allowable in music,

The rhythm of the heroic or iambic pentameter verse of English poetry, in which Spenser, Milton, Shakespeare and in fact most of the great English poets wrote their works, can be made to conform with cycle No. 7 of Group D, on which Soola-tāla (doubled) of Hindusthānî music is based, if its iambic form is converted into the trochaic and the two metric lines of a verse are taken as a single meter. For this purpose accents of four of the ten feet in a couplet are to be obliterated, four are to be made strong and the remaining two weak. The following two lines of Tennison are scanned as follows :—

For bold | in heart | and act | and word | was he,
When- ev- | -er slan- | -der breathed | against | the king.

The rhythmic form of this couplet would be equivalent to that of Soola-tāla (doubled), if it be accented, and scanned in the following way :—

For | bold in heart and | act and | word was he,
When- | ev-er slan-der | breathed a- | -gainst the king.

inasmuch as *laya* or uniform equality of time-length of the cycle is of utmost importance in it. Modulations, which are made at regualr intervals and do not disturb the *laya*, is quite in keeping with the spirit of musical rhythm. This is exemplified in the structure of Soola-tāla, in which the substitution of two bars of two Mātrās for those of four Mātrās are regualr modulations, which do not disturb uniformity of length of the cycle.

Poetical rhythms are mostly quantitative in character. Musical rhythms are, on the other hand, accentual, accents being essential in them for demarcating the bars. These two kinds of rhythm have to be accomodated to each other, if music has to be combined with poetry. Shri Arobindo was confronted with a similar problem in his attempt to introduce classical hexameter into English poetry, which is accentual in character. He solved this problem by stressing the long syllables, which are ignored in English poetry, and using them in place of its accented syllables. A similar device is found to have been adopted in the Dhrupad style of Hindusthānî music in which strong accents of musical rhythm have been made to coincide with strongly stressed long syllables of poetry and weak accents of the former with weakly stressed short syllables of the latter.

The second, the fifth, the seventh and the tenth accents have been obliterated, the first, the fourth, the sixth and the ninth accents have been made strong and the third and the eighth accents have been made weak. The rules of accentuation have been violated in four places. By this procedure the verse acquires the dignity of the hexametric form. It, however, lacks the gravity of quantitative rhythm, in which long syllables play an essentially important part. In order to acquire that gravity the meter should consist of four dactyls and two pyrrhics, one of which is to be placed between the first and the second dactyls and the other between the third and the fourth. The dactyls are to be made quantitative in character. In other words, their first syllables are to be made long. The accents on the long syllables are to be strong and those on the short syllables weak. A short syllable should not, as stated above, have strong accent. The drawback of a purely accentual rhythm indicated above can be remedied to a great extent in iambic meters by means of long caesuras, which have the effect of lengthening the preceding accented syllables. It is evidently owing to this circumstance that iambic meters are preferred to trochaic by the great English poets. Trochaic meters are generally used in subjects of light character. They are sometimes found to be used in devotional poetry. The feet must, in that case, be classical trochees with long first syllables. Longfellow has given the gravity of classical quantitative meter to the verses of his famous "Psalm of life" by a combination of accentual and quantitative characters. The opening verse of the poem may be scanned as follows :—

Tell me	not in	mournful	num - bers
— U	— U	— U	— U
Life is	but an	emp - ty	dream....
— U	— U	— U	— U

The verse is thus converted into classical trochaic tetrameter. The meter would be light in character if all the syllables were short.

This meter can be set to music in either the Dādrā Tāla belonging to cycle No. 4 of Group A, or the Ektāla belonging

to cycle No. 4 of Group C. Hindusthānî Bhajans or devotional songs are found to be composed in this meter.

E.g., ‖ He go- | -vin - da | he go- | -pā - la |
— U — U — — — U

Classical songs of Hindusthānî music are composed in Hindi, the national language of India. The dialect used in them is, unlike some other dialects of the language, mainly Sanskritic in structure. The poetic forms and the rhythms of the songs are, however, mostly indefinite and indeterminate. No attempt appears to have been made to provide these compositions with true poetry, the main objectives being sweetness of language and rhythmic beauty. These objectives cannot, however, be fully attained unless the poetic forms and their rhythmic structure are well-defined. But, except in a few cases, it is not possible to identify the poetic forms and rhythms of these songs with those of either Hindi or Sanskrit.

Considerable improvement can be made in the verbal portions of classical Hindusthāni songs by providing them with appropriate poetic language and correct rhythmic structure. No insurmountable difficulty need be apprehended in this undertaking, if due attention be paid to a few rhythmic rules, which may be stated as follows :—

(1). A musical bar (Pada) of two Mātrās is to be blended with a poetic foot consisting of a single long syllable (ga), or a pyrrhic (dvi-la) ;

(2). A bar of three Mātrās is to be blended with a trochee (ga-la), or an iamb (la-ga) or a tribrach (na-gana) ;

(3). A bar of four Mātrās is to be blended with a dactyl (bha-gana), or an anapaest (sa-gana), or an amphibrach (ja-gana), or a spondee (dvi-ga) or a double-pyrrhic (chatur-la).

(4). A strong accent (praghāta) on a note of a musical bar is to synchronize with a strong stress (praswana) on a syllable of a poetic foot and a weak accent with a weak stress.

(5). A long note or syllable may have either a strong or a weak accent or stress.

(6). A short note or syllable should not, as far as possible, have a strong accent or stress, if it is followed by another short note or syllable. Such use of strong accent or stress is apt to create lightness or even vulgarity.

[Short and long syllables (la and ga) are represented by the signs U and — respectively. Trochee = — U : Iamb = U — ; Tribrach (Na-gana) = UUU ; Dactyl (Bha-gana) = — UU ; Anapaest (Sa-ga) = UU — ; Amphibrach (Ja-gana) = U — U ; Spondee (Dvi-ga) = — — ; Double-pyrrhic (Chatur-la) = UUUU.]

Hindusthānî music owes its origin to Sāman chants, which were sung in Vedic rituals. Music in ancient India was used mainly for devotional purposes. The songs were composed in Sanskit, which was the sacred ritualistic langnage of India. This tradition appears to have been followed for a long time in later secular music. Songs of the old Prabandha Style, from which the Dhrupad Style was developed, were wedded to Sanskrit poetry. The musical rhythms of these songs were evidently adapted to the rhythms of that poetry. In the absence of authentic records it is impossible to ascertain the character of these poetic rhythms and the musical rhythms, with which they were blended.

The rhythms of Sanskrit prosody found to be adaptable to rhythms of Hindusthānî Music, which, are given below, will be helpful in understanding the processs of blending the two types of rhythms.

The first stanza fo Shankarāchārya's Mohamudgara, which is composed in Pādākulaka Chhanda of the Jāti class, may be scanned as follows :—

Mū-ḍha ja-| hî-hi dha-| -nā - ga - ma - | - ṭrish - nām ;
— U U — U U — U U

Ku - ru ṭa - nu - | - bud - dhe| ma - na - si vi-| - ṭrish - nam;
U U U U — — U U U U — —

Jal - la - bha - | se ni - ja -| Kar - mo -| pāt - ṭam
— U U — U U — — — —

Viṭ - ṭam | ṭe - na vi - | - no - da - ya | chiṭ - ṭam
— — — U U — U U — —

Each of the four lines is a tetrameter, in which the feet consist of four Mātrās, the whole meter containing sixteen Mātrās. The number of syllables in the lines vary from ten to twelve. The verses are singularly free from monotony, as the feet are of different character in each line. Two of the three kinds of feet dactyl, spondee and double-pyrrhic are used in a line. Each line closes with a spondee, as in Greek hexameter. The stanza can be set to music in Tritāla, which is generally used in the Kheyāl Style. The accent marks of the Tāla are put on the first syllables of the feet.

The same Tāla can be used in setting the following Hindi verse to music. :—

Ja-la-cha-ra | tha-la-cha-ra | na-bha-cha-ra | nā - na ||
U U U U U U U U U U U U

Je ja - da che - ṭa - na jî - va ja - - hā - nā
— U U — U U — U U — —

The first line contains three double pyrrhics and the second three dactyls. Each line concludes with a spondee.

Dhrupad Style being most intimately associated with poetic rhythms, appropriate meters should be found out or constructed which are adjustable to the Tālas used in that Style.

The Sanskrit meters called Mānavaka, Madhumati and doubled Tanumadhyā or Manimālā have been found to be adjustable to the Tālas called Chautāla, Rupakḍā (doubled) and Soola-tāla respectively used in Dhrupad Style.

The Mānavaka meter is defined in Chhandomanjarî as follows :—

Ādi-gaṭam ṭūrya-gaṭam,
Panchamakam chānṭa-gaṭam ;
Syād-guru cheṭ ṭaṭ-kathiṭam,
Mānavaka-krîḍamidam.

The four quarters (Pādas) are similar in structure. The first quarter may be scanned thus :—

|| Ā - - | - di - ga - | - ṭam - - | ṭūr - - | - ya - ga- | - ṭam ||
— U U — — U U —

The twelve Mātrās of this meter are divided into six feet, of which four consist of a long syllable each and two of a pyrrhic each. It accords with Chautāla as it is popularly conceived. But, Chautāla is, in actual practice a Tāla of twenty-four Mātrās. This will be evident from the syllabic stroke-symbols (thapia) for Pākhwāj used in this Tāla, which may be scanned as follows :—

dhā dhā | din ṭā | ki-ta dhā | din ṭā |
— — — — U U — — —

ṭi ta ka ṭa | ga di ga na ||
U U U U U U U U

Considered as a line of poetic meter, it consists of three spondees, one anapaest and two double-pyrrhics. This is analogous to Greek hexameter, which consists of either dactyls or spondees. The character of the meter is not materially altered if a dactyl or a spondee or an anapaest or a double-pyrrhic is used for any of the feet, as they are all equal, containing four Mātrās each. A spondee is found to be used as the concluding foot of most of such meters and appears to be best suited for that foot. That Chautāla is in practice a Tāla consisting of bars of four Mātrās is further evidenced by the fact that four syllables are put in each bar in the *Bānt* of a Dhrupad song in that Tāla. These songs will be endowed with the full dignity and gravity of Greek hexamater, if their poetic setting consists of hexameters of feet having syllables, the sum-total of whose length is four Mātrās. Any suitable language can be used for such poetry.

The following verse in Madhumati meter may be scanned thus :—

Ra-vi-du - | - hi-ṭri- | ṭa-te... | va-na-ku | - su-ma- | - ṭa-ṭih ||
U U U U U U — U U U U U —

Vya- dhi- ṭa | - ma- dhu - | -ma-ṭî ... | ma-dhu-ma- | -tha-na- |
U U U U U U — U U U U U

mu - dam ||
U —

Each line of this verse, which is in Madhumati meter doubled, can be set to music in Rupakḍā Tāla doubled, the

super-strong accent (Sam) of the fourth foot being made a strong accent (Tāli). In this form the meter can be used in the Dhrupad Style as hexameter. Either an iamb or a trochee or a tribrach can be substituted for any of the feet of three Mātrās.

The following verse in Tanumadhyā meter may be scanned thus :—

+ Mur-ṭir	0 mu-ra-	-sha-ṭro-	' -ra-ṭyad-	0 -bhu-ṭa-	' -ru-pā···	
— —	U U	— —	— —	U U	— —	
+ Ās-ṭām	0 ma-ma	chiṭ-ṭe	ni-ṭyam	0 ṭa-nu-	-ma-dhyā	
— —	U U	— —	— —	U U	— —	

The Manimālā meter of twenty Mātrās is equivalent to double of the Tanumadhyā meter of ten Mātrās. Each of the above lines, which may be considered as a quarter of a verse of Manimālā meter, can be set to music in Soola-tāla (doubled) of Dhrupad Style.

It follows from the rhythmic rules set forth above that an iamb or an amphibrach or an anapaest cannot be blended with musical rhythm, if these feet are taken in their modern English forms. In the English forms their second or third syllables are accented. They cannot, therefore, be blended with a musical bar in which the accent must be placed on the first note. Fixed accents on syllables in the languages of accentual rhythms and fixed lengths of vowels in the languages of quantitative rhythms are both handicaps in blending poetic rhythms of these languages with musical rhythms. Languages like Bengali in which there are no fixed accents or long vowels are best suited for music, because, stresses or accents or long vowels can be used according to need in these languages. Use of accents in a language is a modern convention. They did not exist in ancient languages and do not exist in most modern languages. Fixed length of vowels is neither natural nor a necessity. No distinct voice-organs are involved in pronouncing long syllables. They depend solely on the will of the speaker, who may either shorten or lengthen the sound according to need. For example, the vowels in the words "but" and "far" are in reality no different vowels so far as their sounds

are concerned. The difference is only in the duration of the sounds which, though depending on the will of the speaker, is arbitrarily fixed by means of different letters of the alphabet. Accents and fixed lengths of vowels are, therefore, not natural features of languages.

It should, however, be pointed out here that accents are essential for musical rhythms for the purpose of demarcating the bars, though they are not so for poetic rhythms for the purpose of demarcating the feet. The feet in quantitative rhythms are demarcated by means of caesuras[13]. These are substituted by accents in blending poetic rhythms with musical rhythms. All vowels can be either shortened or lengthened according to need in order to keep the number of Mātrās of the rhythmic cycle constant, a long vowel being taken to be equivalent to two Mātrās.

The Dhrupad song of poet Tagore given in Chapter XVI is a fine specimen of combination of sublime melody with sublime poetry. The composition is in Chautāla. The rhythm of the Āsthāyî period of this song may be scanned as follows :

| Tān-re | Ā- - - | -ra-ṭi | ka-re | chan- - |
U U — U U U U —

| -dra ṭa- | -pa-na | de - - | -va mā- | na-va |
U U U U — U U U U

| van- - | -de cha- | -ra-na | ā- - | -sî-na |
— U U U U — U U

se-i | vi - - - | -shwa-sha | -ra-na | ṭān - - |
U U — U U U U U

-ra ja- | -ga-ṭa | man - - | -di-re | (Tān-re)
U U U U — U U U U

13. Accents are used as means of demarcation in the rhythms of all musical systems. In Karnatic music Tālis (accents) are used for the same purpose. But no difference in the strength of the accent is recognized. It is, therefore, not, possible to have musical rhythms consisting of equal bars in that system. All Tālas used in it consist of unequal bars. Rhythmic distinction of the Tālas is made by the difference of the lengths of their bars and not by their accents (Tālis) which are uniform in strength.

The vowels in the syllables ṭān, mā, de, sî and se, and re in three places, which are long according to Sanskrit grammar, are used as short vowels. The syllable ṭān is made short in one place and long in another. It will thus be seen that the poet makes a vowel short or long according to need, keeping the number of Mātrās of the cycle constant. Violalation of rules of grammar has also to be made sometimes in songs composed in quantitative poetry. For example, the syllable "go", which is grammatically long, is treated as a short syllable in two places of the Hindusthanî Bhajan given above, beginning with : "He govinda".

(c). Final and Semi-final (Nyāsa and Apanyāsa) :

The Final and Semi-final notes are very important factors in the determination of the character of Styles. The difference between the Styles depends largely on the manner in which these notes are given prominence. The Final (Nyāsa) must, as a rule, synchronize with the super-strong accent or Sam of the Tāla, which is expressed by means of the stroke called Dha in the accompanying drum. That note is made prominent in this way in both Dhrupad and Kheyāl. It is most prominent in a composition of the Dhrupad Style, as in the process of blending the musical rhythm of that Style with the rhythm of the poetry, with which it is always associated, that note is made to coincide with a highly stressed long syllable usually placed at the beginning of the song. In Kheyāl, which in not inalienably associated with poetry or poetic rhythm, the Nyāsa has to be brought to prominence by concluding on that note from time to time. The song has to be repeated with a pause after the note. The art of using pauses without disturbing the rhythmic continuity of the Tāla has to be cultivated by all good musicians. The pause should not be too long. It should not usually exceed half the time of the whole cycle of the Tāla. The reason why musicians do not use pauses in their performance is that they do not know where to stop and for how long.

The Semi-final note should also be clearly perceived in order to have a full view of the pattern of the Rāga. This

note can not be brought to prominence by following the methods mentioned above. The only way of doing so it to give the note long duration. As this can be done only by a good composer who has a clear idea of the pattern of the Rāga, this note is often found to be almost imperceptible in the compositions of a Rāga. It can not, however, be too much emphasized that a full comprehension of the character of a Rāga depends solely on a clear perception of both the Final and the Semi-final notes.

The attractiveness and popularity of the elegant Styles is mainly due to the fact that the Final and Semi-final notes are always clearly perceptible in compositions of these Styles. Their very character depends on the prominence given to those notes in the compositions. They are, as a rule, made long, lasting for a few Mātrās after being sounded with a super-strong accent. The Final note is made longer than the Semi-final in order to give it greater prominence. The distinction between the Final and the Semi-final notes is most marked in in the Tappā Style. The especial feature of this Style is that the penultimate Characteristic Phrases (Upānta Tānas) of the Rāgas used in this Style conclude with a rather long and florid combination of notes in the form of the embellishments known as Āsh and Gitkāri, explained below. This ornamental prelude to the Semi-final note not only brings it out in well-marked prominence, but also contributes largely to the peculiar beauty and the sentimental expressiveness of this Style,

(d). Embellishment (Alankāra) :

The six embellishments which are mainly used in Hindusthānî music are :—Meed, Gamak, Āsh, Gitkāri, Bhushikā and Svarāvarta. They may be dealt with in three groups according to their suitability for the Grand, the Free and the Elegant Styles. The embellishments used in the light Styles are not used in the grave Styles.

The word "Alankāra" is used in Hindusthānî music in a sense wider than that of the English word "Embellishment." It includes not only fractional notes, which are used for

ornamenting substantive notes and partake of their time, but also full notes, which do not disturb the time of the ornamented notes. The Alankāras which consist of full notes are used especially in the grave Styles. The fractional "Grace Notes" have a peculiar fascination for the mass mind, and largely contribute to the popularity of the light Styles.

(i). Meed and Gamak :

These Alankāras, which are peculiar to the Dhrupad Style, impart a remarkable beauty to that Style. Good singers in this Style are capable of producing wonderful æsthetic effect by judicious use of these embellishments. These are two special methods of passing from one note to another, which is related to it in a relationship of consonance. These relationships are brought to charming prominence by these two methods. The first method consists of a slow gliding movement from one note to another, passing through all the intermediate tones, which are imperceptible as seperate notes. A weird yet pleasant effect is produced by this process. The second method consists of an abrupt passage from one note to another, giving a especial stress to the latter by means of a strong or rather vehement accent. This is, so to speak, a heroic method, and should be used carefully and not too often.

(ii). Āsh and Gitkāri :

These embellishments are used in the Free and Elegant Styles. They are most often used in the Tappā Style and are, in fact, almost indispensable for that Style. The first of these is a Tāna consisting of a number of consecutive notes of the Scale sung without a break in a continuous strain with the help of a vowel. In the Tappā Style the Penultimate Phrases conclude with such Tānas and close with the Semi-final note (Apanyāsa). This is one of the characteristic features of this Style. An Āsh may be either of an ascending or a descending character. Gitkāri is a similar embellishment. An Āsh becomes a Gitkāri, when every two consecutive notes are sung together in a single Mātrā, the first of these couples of notes

being stressed. A Gitkāri may be either of an ascending or descending character like an Āsh. The starting and the concluding notes of these ornamental Tānas are usually consonant to each other.

(iii). Bhushikā and Svarāvarta :

These embellishments are fractional notes which ornanment substantive notes of the original composition. They are profusely used in the Thumri Style and are popular in European music. Their difference from the embellishments mentioned above is that while the former consist of notes of one or half Mātrā each, the latter consist of fragmentary notes which make up full Mātrās together with the ornamented substantive notes. Bhushikā is a note immidiately above or below the principal note and takes a portion of the time of that note. The time taken is usuallyone-fourth of a Mātrā. Thus : M: M,P; D : in ascent and P : P,M; G : in descent. The ornamental notes are underlined. In Thumri these are used frequently to adorn the principal notes, and are, therefore, called "Bhusikā", i.e., ornamental. In European music they are called "Appoggiatura" or "Acciacatura". There is another method of using the ornamental note, in which it is placed between two principal notes of the same pitch, the three notes making up a single Mātrā. Thus :— M : P,M,P. D : in ascent and D : P,D,P. M : in descent. These are called lower and upper "Mordents" respectively in European Music.

"Svarāvarta" which is called "Turn" in European music is a combination of the two Bhushikās, upper and lower. It may either begin with the principal note, pass through the two Bhusikās and return to the principal note, or begin with one of the Bhushikās, pass through the principal note and the other Bhushikā and return to the principal note. The four notes together make up a full Mātrā. The peculiar flavour of this embellishment is attributable to the consonant interval of Minor Third between the two ornamental notes. Only those notes of a Scale can, therefore, have this embellishment which have a Tone on one side and a Semitone on the other,

as these two intervals together make up a Minor Third. There are four such notes in the Primary Scales. In their similar forms these notes are :— S, G, M and N. As the first of the two ornamental notes may be either above the principal note or below it, each of the aforesaid four notes may have two Svarāvartas.

They are as follows :—

S - - - - (1) S, R, N_1, S, and (2) S, N_1, R, S,
G - - - - (1) G, M, R, G, and (2) G, R, M, G,
M - - - - (1) M, P, G, M, and (2) M, G, P, M,
N - - - - (1) N, S^1, D, N, snd (2) N, D, S^1, N,

It will be observed that the second Svarāvarta of each note is inverse of the first, the upper ornamental note coming first in the latter and the lower in the former. The second Svarāvartas are called "Inverted Turns" in European music. They may be termed "Viparîta Svarāvarta". It should be pointed out that only three of the notes may have this embellishment in each Primary Scale. The notes G, N, M and S may have no Svarāvarta in the First, the Second, the Third and the Fourth Scales respectively ; because, the intervals between the notes above and below them are False Thirds in their respective Scales. Modulation to different Scales have to be made, if these notes are to have Svarāvarta. The aforesaid four notes get different relative positions in the octaves of the different Modes of the Scales ānd acquire different names in the Common-Initial forms of those Modes.

The above-mentioned Alankāras in their various forms played an important part in the development of the Thumri Style and gave rise to different varieties of that Style by ingenious and artistic application[14].

14. A great impetus was given to the growth of this Style during the middle of the 19th century A.D. by Nawab Wazid Ali Shah, king of Oudh, who was brought as a prisoner from Lucknow, a great seat of musical culture, by the British Raj to Matiaburz near Calcutta in the year 1856 A.D. The great musicians Ganapat Rao, Maijuddin Khan and others created

Svarāvarta Alankāra has an especial importance in Hindusthānî music, inasmuch as it can be used in the higher Styles if full notes are used in them instead of fractional ones.

Their greatest importance lies in the fact that they are incorporated in some Rāgas as essential embellishments of their Final or Semi-final notes. In these Rāgas the leading notes above and below these notes make Minor Thirds. These serve as the two ornamental notes of a Svarāvarta. The leading note which is proper for the Rāga is placed immediately before the Final or Semi-final note in the Svarāvarta. Some instances of Rāgas which conclude with Svarāvartas are given below :

(1) In Rāga Iman the note Na_1, which is a Semitone below the Semi-final Sa, and the note Ra, which is a Tone above it, make a Minor Third between them. The Penultimate Phrase in this Rāga closes with the Svarāvarta Sa $\underline{Na_1\ Ra}$ Sa.

(2) In Rāga Kāmode the notes Mî and Dâ, below and above the Final Pa, make a Minor Third. This Rāga concludes with the phrase Ra Dâ Pa, Pa $\underline{\text{Mî Dâ}}$ Pa. In the oblique cadence of this Rāga the leading note Dâ is a Tone above the Final Pa, and the note Mî is a Semitone below it.

(3) In Rāga Gauḍ Sāranga the notes Ră and Ma, below and above the Final Ga, make a Minor Third. The Rāga concludes thus :—Sa Ma Ga. Ga $\underline{\text{Ră Ma}}$ Ga.

The leading note Ma of the oblique cadence is a Semitone above the Final Ga. The note Ră, which is a modulating note lower by one Anushruti than the substantive note Ra, is a Tone below the Finăl Ga. This Rāga is in Primary First Scale. It modulates to Primary Fourth Scale when Ră is used in the concluding Svarāvarta.

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about this period new varieties of this Style which came to be called "Maijuddini" "Karimi", "Faizi" and so on after their names. The exact characters of these sub-styles have yet to be investigated.

MUSICAL TERMS.

English and Indian equivalents.

Accent—Praghāta
Amplified—Pari-vardhita
Ascending—Ārohî
Ascent—Āroha
Augmented Fourth—Vardhita Chaturtha
Auxiliary Phrase—Sādhaka Tāna
Bar—Pada
Bicentric—Dvi-kendrika
Cadence (or final)—Nyāsa
Cadence-Norm—Nyāsa-Nidarsha
Cadence Phrase—Nyāsa Tāna
Cent—Shatāmsa
Characteristic Phrase—Vishishta Tāna
Chromatic note—Vikrita svara
Chromatic Scale—Sālanga Grāma
Comma—Anu-svana
Common-Initial—Sama-graha
Common-Tonic—Samāmsa
Complementary Phrase—Puraka Tāna
Consonance—Samvāda
Consonant—Samvādî
Converse—Viparîta
Conversion—Parivartana
Converting note—Parivartaka svara
Cycle—Āvarta (Āorda)
Cyclic division—Āvartika bibhāga
Cyclic periodicity—Āvartika Kālasāmya
Degree—Krānti
Descending—Avarohî
Descent—Avaroha
Diminished Fifth—Khandita Panchama
Direct Cadence—Sarala Nyāsa
Dissimilar Scales—Vi-sadrisha Grāma
Dissonance—Vivāda
Dissonant—Vivādî
Downward leading note—Adho-nāyaka svara
Elementary Scale—Ādima Grāma
Evolution—Parinati
External periodicity—Bāhya kālasāmya
False Fifth—Vrithā panchama
False Fourth—Vrithā chaturtha
False Third—Vrithā tritîya
Fifth—Panchama
Final (or Cadence) note—Nyāsa svara
Fixed or immovable fret—Achala Sārani or Pardā
Flat (note)—Komala (svara)
Fret—Sārani ; Pardā
Fundamental note—Mula svara
Group—Varga
Group A—Varga Ka
— B— — Kha

Harmony—Svara samhati
Harmonic Triad—Samhata Trayî
Heptachord—Saptaka
Heptad—Saptakî
Hexachord—Shatka
Hexachordal—Shātka
Hexatonic—Shādava
High note—Uchcha svara
High sharp note—Ati-tîvra svara
Identity—Samatva
Imperfct consonance—Anusamvāda : anuvāda
Imperfectly consonant—Anusamvadî : anuvadî
Initial note—Graha svara
Internal periodicity—Ābhyantara Kāla-sāmya
Interval—Antara
Inversion—Viparyaya
Inverted—Viparyasta
Just intonation—Vishuddha svara-sams-thana
Just Notation—Vishuddha Svara-lipi
Large Tone—Vrihat svana
Leading note—Nāyaka svara
Long syllable—Guru varna
Lower octave—Mandra ashtaka
Lower Tonic—Adhara Amsa
Low note—Neecha svara
Major—Āyata
Melody—Svara sangati
Melodic Triad—Sangata Trayî
Mid octave—Madhya ashtaka
Middle Tonic—Madhya Amsa
Minor—Laghu
Mode—Murchhanā
Mode First—Murchhanā Prathamā
— Second—„ Dvitîyā
— Third— „ Tritîyā
— Fourth—„ Chaturthî
— Fifth— „ Panchamî
— Sixth— „ Shashthî
— Seventh „ Saptamî
Natural note—Shuddha svara
Nonatone—Anushruti
Nonatomic Scale—Anushruti Grāma
Notation—Svara-lipi
Note—Svara
Oblique Cadence—Vakra Nyāsa
Oblique motion—Vakra gati
Octave—Ashtaka
Omitted note—Varjita svara
Pentachord—Panchaka
Pentachordal—Pānchaka
Pentad—Panchakî
Pentatonic—Auduva
Penultimate Phrase—Upānta Tāna
Perfect consonance—Susamvāda
Perfectly consonant—Susamvādî
Perfect Phrase—Purna Tāna
Period—Dhatu ; Took
Periodicity—Kālasāmya
Phrase—Tāna
Poetical rhythm—Kāvya chhanda

Primary Scale—Mukhya Grāma
Ratio—Anupātānka
Related dissonance—Sambaddha Vivāda
Resonance—Anu-ranana
Response—Prati-svana
Rhythm—Chhanda
Scale—Grāma
Scale, First—Grāma, Prathama
— Second— „ Dvitîya
— Third— „ Tritîya
— Fourth— „ Chaturtha
— Fifth— „ Panchama
Scale of origin—Mula Grāma
Secondary Scale—Gauna Grāma
Semifinal note—Apanyāsa
Semitone—Ardha-svana
Semitonic Notation—Ārdhasvanika Svara-lipi
Semitonic temperament—Ārdhaswanika samîkarana
Sharp (note)—Tîvra (svara)
Short syllable—Laghu varna
Similar Scale—Sadrisha Grāma
Similarity of Scale—Grāma-sādrishya
Simple Scale—Sarala Grāma
Sixth—Shashtha
Small Semitone-Kshudra Ardha-svana
Strong accent—Guru praghāta ; tāli
Super-strong accent—Atiguru praghāta ; sam
Syllabic stroke-symbol (for drums)—Thekā ; thapiā
Temperament—Samîkarana
Tempered Scale—Samîkrita Grāma
Tetrachord—Chatushka
Theoretical—Aupapattika
Theory—Upapatti
Theory of Consonance—Samvāda Tatva
Time-unit—Mātrā
Tone—Svana
Tonic—Amsa
Transformation—Rupāntara
Transilient Scale—Hînasvara Grāma
Triad—Trayî
Trichord—Trika
Trichordal—Traika
Tritone—Tri-svana
Tuning—Mārjanā
Turn—Āvarta alankāra
Unicentric—Eka-kendrika
Unitary Scale—Ekangî grāma
Upper octave—Tāra ashtaka
Upper Tonic—Uttara Amsa
Upward leading note—Urdha nāyaka svara
Weak accent—Laghu praghāta ; khāli or phānk

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APPENDIX A.

Extracts from the rock inscription discovered in 1904 at Kudimiyamalai in the Pudutottai State of Southern India and published by Rao Bahadur P.R. Bhandarker, B.A.. L.M. & S (Bo.), Indore, in Epigraphia Indica, Vol XII, pp. 226-237.

KUDIMIYAMALAI ROCK INSCRIPTION.

Section 1.

Siddham | Namah (1) Shivaya (h) |

Madhyamagrāme Chatushprahārasvarāgamāh.

1. Sa ne pu sa gi ne gi sa ne dhu ne sa mu pu ne sa
mi ra gi sa ru ge nu su sa gi ne sa re mu pe sa
mi ga ne sa pe mu ne sa ra mi ga se dhu ne gi sa
ne pu ne sa pi ma pi se ga dhu ne sa mu ne pu ..

2. na pe ru ge mi ga re ga ne sa ra gi dhu ne ra gi
sa gi ne gu pe mu ra gi [mu] pi ru ge gi sa ra gi
sa ne ra gi ru ge nu ge pi ga re ga ne pu ra gi
su ge ra ge ga re mi ga pi ne ra gi se ra mi ga

3. pu sa [mu] pe gi sa ne pu ne sa ne pu ma ni ma pi
dhu [ne] mu pe sa mu ne pu ni ma ni pa re ga mu pe
dhu·su [ne] pu mi dhu ne pu sa dhu ne pu ne sa mu pe
gu pe mu pe sa gi ne pu ne dhu ne pu gi sa mu pe

4. ne pu dhu ne mu sa dhu ne ra gi dhu ne gi sa dhu ne
ni ma pa ni ne sa dhu ne mu ne dhu ne sa mi dhu ne
mi ga se nu se ga se nu ga se mu ne pu sa gu ne
sa ne dhu ne [mu] gi dhu ne ni ma dhe na pe su gi ne

5. mu sa pe mu gi ne sa mu ne mi sa mi sa dhu ne mu
ne gi sa mi mu pe sa mi ra gi pe mu gi sa pe mu
dhe sa ne mu ga se pi ma su ge su ma mi dhu ne mu
ra gi se mu ne sa ne mu ni me pi ma ru me gu me

Samāptā [h] [sva] [rāgamāh]

*** *** *** ***

Section V.

Panchame Chatushprahārasvarāgamāh.

22. pu ne dhu se ra pi ma se pi mu pe su ne [u] me su
sa mi ra se dhu ne mi sa ne sa pe su ri sa me su
sa dhe ri sa ne pu ri su pu se ra se dhi a mi se
na ru pe su ne ra mi se dhu ra pi [se] mi a me [su]

23. mu pe sa ri ne mu pe ru sa dhu ne ra pi ma se ra
ru u me ru ma dhe na ri ne dhu ne ra pi ra se ra
dhe na pe ru ri sa me ru ma pi ma re pu dhu ne ra
ra na pe ru dhe na [me] ru pi a mi re su [u] me ru
*** *** *** ***

26. ne ru dhe na u mu dhe na ri sa dhu ne ra ne dhu ne
pu ra dhu ne su ri dhe na pe mu dhe na mi ra dhu ne
[ra] mi dhe na ri pu dhe na dhe ru dhe na ru u me na
mu pu dhe na dhe ru sa ne dhi pu dhu ne sa ri dhe na

27. [ra] e ma pi me u mu pe ri sa ne pu ra dhu ne pu
ma pi re pu ne u mu pe ru pe u pe dhi e ma pi
[ra] mi u pe ru na mu pe mi a ma pi dhe na ri pe]
ri pu ne pu dhe ru na pe su pa ma pi ra [ne] mu [pe

Section VII.

Kaishike Chatushprahāra-svarāgamāh.

32. sa u me su ri ke ri sa dhe mu dhe sa mu ke ri sa
ri dhu ke sa dhu ka ri sa ke sa dhu se a me ke sa
ru me dha si me dha me su mi dha me su sa ke ri sa
ke sa ri sa u mu dhe sa dhi su me su ka [mi] . . . .

33. mu dhe si ra pi se mi [ra] me u me ru a mi ma re
mi ra me ru sa ke mi ra su me pa ru dhe pu sa ri
u mu ke ra mi a dhi re a pi se ra pe ru dhe [ra]
[ke] ra se ra mi se dhi ra su pe su [ra] ma [pi] . . . .
*** *** *** ***

37. ke ra se [ka] sa mu sa ke su ru sa ke ri dhu sa ke
su ru [ma] ku ra mi sa ke ri ka se ke e ma se ku
ma dhi se ku dhi ma se ku se a mi ke dhu ra se ku
sa dhu sa ke mi ra se [ka] . . . . . .

38. dhu ke sa pu [ke] sa [mu] pe sa ri mu pe ri sa ru pe
mu [ke] sa pu [ke] sa u pe sa ma [e] pu ri ke sa pu
sa re sa pu mi dhu [re] pu [ke] sa ru pe mu pe ra pi
se ka se pu mi se ma pi .. ..

Shri Rudrāchārya—shishyena paramamāheshwa(re) na rā [jnā] shishya-hitārttha kritāh svarāgamāh ||
(E) ttirkum elirkum (i) vai uriya ||[1]

N. B.—Each note is expressed by a combination of the initial consonant in the name of the note with the vowels a, i, u, e ; e.g., sa, si, su, se. The notes Antara and Kākali are represented by the letters a and ka. The modifications of Antara are a, u and e and those of Kākali are ka, ku and ke. The i and ki are found to be wanting. Bhandarkar thinks that the vowel-endings of the notes may indicate particular ways of striking or plucking the string of the Veena for which these compositions were intended. The dots found on the tops of some of the notes of the inscription have been omitted. Bhandarkar was unable to suggest any explanation of this sign. —The author.

APPENDIX B.

Scheme for a Model Stringed Instrument of the Veena type.

It has been long recognized that of all cycles that of fifty-three is the best capable of expressing the relationships of musical notes in what is, so far as the human capacity for appreciating distinctions of sounds is concerned, tantamount to just intonation. In an appendix to the English edition of Prof. Helmholtz's "Sensations of Tone" we find that Mr. Bosanquet devised a harmonium with fifty-three keys tuned

1. The four following words are written in Tamil characters of the same period (7th century A. D.). Literally translated they mean : "These (svaras) are appropriate (also) to eight and seven."

according to this cycle. But, the difficulty of picking out the few keys required for a particular piece of musical composition and confining, at the time of playing the piece on the instrument, one's sole attention to them in the midst of a bewildering maze of keys was, evidently, felt to be insurmountable ; and the instrument ever remained only an object of scientific curiosity. No other serious attempt seems to have been made since then to bring that cycle into practical use. Indian stringed instruments of the Veena type (Sitar, Esraj etc.) possess certain characteristic features which render them suitable, with necessary modifications, for being utilized for the aforesaid purpose. One of these features is that notes of about two octaves can be played without interruption on the same speaking wire. Another feature is that not more than eight frets are generally used within the compass of a single octave. The third and the most important feature is that the frets are all movable, so that they can be shifted at will and adjusted to different positions in order to have notes of different pitches. Consequently, extra frets for the flat and the sharp notes are not required, the only extra fret used being that for the sharp Fourth.

The shape of an instrument of this type can be so modified that a graduated scale of fifty-three equal divisions for an octave can be attached to the side of its long limb which runs parallel to the speaking wire. Further, a fret can be so constructed and placed that it can be moved perpendicularly along the graduated scale placed parallel to the speaking wire, set by a pointer attached to it to the mark of the scale indicating a particular note and fixed there by means of a screw, so that the top of the fret so fixed would indicate the position of that note in the scale. When, therefore, the wire is pressed back on the fret so fixed the length of the wire from the upper bridge to the fret would produce the note indicated by the fret, or in other words, by the mark of the scale to which it is set. As the adjustments of the frets for the few notes required for a certain piece of music have got to be made only once before that piece is played, the graduated scale with its numerous note-marks need not be

felt as an encumbrance by the player or create any confusion at the time of playing, inasmuch as the scale is out of his sight during that period and his attention can be confined solely to the few frets required for the particular music.

The speaking wire of all stringed instruments is placed at a certain distance from the frets. It is pressed back on the fret indicating a particular note at the time of sounding it. Consequently, every time the wire is pressed back its tension is increased. Now, the pitch of the note produced by a wire or a portion of it depends not only on its length but also on its tension. The scale which is to indicate the positions of the notes has, however, to be graduated on the basis of wire-lengths only. So, unless the tension of the wire can be kept constant for all positions of the frets, the notes produced by them would not be correct, however accurately the wire lengths may be calculated for correct intonation. The first problem, therefore, is—how to ensure uniformity of tension of the wire for all positions of the frets. Again, when the wire is pressed back on a fret, it is obviously stretched. The length of the wire is, in consequence, increased to an appreciable extent. The second problem, therefore, is—how to maintain with accuracy the required relationships amongst the different portions of the wire intercepted between the upper bridge of the instrument and the different frets, when the wire is pressed on them and is thereby elongated.

Both of these difficult problems have been satisfactorily solved by taking the help of certain remarkable properties of the elliptical curve, as explained below.

Let the straight line ZZ′ (Fig. I) of known length be divided into two equal parts at O and into three equal parts at N and N′. Then ON and ON′ are each one-sixth of ZZ′ and are therefore also of known length. Through the points N and N′ draw NP and N′P′ perpendiculars to ZZ′ of some given length less than ZN. Let the curve in the diagram represent the ellipse drawn with ZZ′ as the distance between the two directrices and PN and NO as the co-ordinates of P, all of which are of given

lengths. Let S and S′ be the two foci of the ellipse. Through any point M in SS′ draw the perpendicular MT meeting the curve at T. From T draw TK perpendicular to the directrix

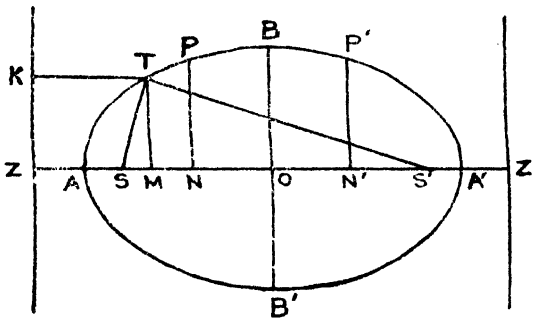

FIG. I.

ZK. Join ST and TS′. Then the relationships shewn below follow from the inherent properties of the elliptical curve :

$$ST + TS' + AA' \cdots\cdots (1)$$

$$ST : TK = e \text{ (a constant ratio)}$$

As, $ZM = TK$,

Therefore, $ST : ZM = e \cdots\cdots (2)$

Now, suppose we take any number of points M_1, M_2, M_3, etc. on ZZ′, draw perpendiculars through them to meet the curve at T_1, T_2, T_3, etc. respectively and join them to S and S′.

Then, from relationship number (1) it follows that.

$$ST_1 + T_1S' = AA'$$
$$ST_2 + T_2S' = AA'$$
$$ST_3 + T_3S' = AA'$$
$$\&c \qquad \&c$$

Therefore $ST_1 + T_1S' = ST_2 + T_2S' = ST_3 + T_3S' = \text{etc.}$

That is to say, the sum of the distances of any point on the ellipse from its two foci (S and S′) is constant.

From relationship number (2) it follows that

$$ST_1 : ZM_1 = e$$
$$ST_2 : ZM_2 = e$$
$$ST_3 : ZM_3 = e$$
$$\&c. \qquad \&c.$$

Therefore,
$$ST_1 : ST_2 = ZM_1 : ZM_2$$
$$ST_1 : ST_3 = ZM_1 : ZM_3$$
$$ST_2 : ST_3 = ZM_2 : ZM_3$$
$$\&c. \qquad \&c.$$

Consequently, the straight lines ST_1, ST_2, ST_3, etc. bear to each other the same relationships as do the corresponding straight lines ZM_1, ZM_2, ZM_3, etc.

Now, suppose that the straight line ZZ' represents a wire that is so graduated and marked that each mark gives the position of a particular note, and that these marks are named M_1, M_2, M_3&c. so that the wires of the lengths ZM_1, ZM_2, ZM_3 &c. when struck would give the sounds of the notes indicated by the marks M_1, M_2, M_3 &c. respectively.

Also, suppose that S and S′ represent the positions of the upper and the lower bridges of a stringed instrument of the Veena type, so that SS′ would represent the length of the speaking wire of that instrument.

Further, suppose that the points T_1, T_2, T_3, &c. represent the tops of the different frets adjusted to that instrument, so that ST_1S', ST_2S', ST_3S' &c. would represent the different positions of the wire SS′ when it is pressed back on the frets at T_1, T_2, T_3 &c. respectively.

Then,

First, the length of the whole stretched wire would always be the same, whether it is pressed back on T_1 or T_2 or T_3 &c. Hence, the tension of the wire would remain the same, so long as the top of the fret on which it is pressed back lies in the above elliptical curve.

Secondly, the notes produced by any two of the stretched wires ST_1, ST_2, ST_3 &c. would have the same relationship to each other that subsists between notes produced by the two

corresponding wires amongst ZM_1, ZM_2, ZM_3 &c. Hence, the tops of the frets T_1, T_2, T_3 &c. would indicate the same relative positions of notes as those indicated by the corresponding marks M_1, M_2, M_3 &c. in the graduated scale on ZZ'

It would be clear from what has been stated above that the graduated scale that is to be attached to the long limb of the stringed instrument may not be on a straight line. It must be on such a curve and so graduated that when a fret is set at right angles to the tangent of the curve at a particular mark, its top would coincide with the point T in the imaginary elliptical curve which is vertically opposite to the corresponding mark M in the imaginary graduated scale on the imaginary straight line ZZ' coincident with the speaking wire of that instrument.

The two problems, referred to above, arising out of the tension of the speaking wire of stringed instruments at the time of playing on it having been solved, a scheme for the construction of the proposed instrument may now be formulated. Formulation of such a scheme needs two data. The first is a base-line (ZZ') coincident with the speaking wire of the instrument, which is to be graduated in accordance with the cycle of fifty-three. The other datum is the distance of a given point on this base-line from the fret which is vertically opposite to it. The lenghts of these two must be chosen arbitrarily at the outset according to convenience. The other requisites for the scheme which are to be derived from these two data are the positions of the marks of the graduated scale on the base-line, the length of the speaking wire and its position on the base-line and the positions of a sufficient number of points on the elliptical curve from which the curve may be laid out. The usual lengths of the speaking wires of instruments of the aforesaid class are near about thirty inches. The open string produces the note Ma_1 (Fa_1). Two-thirds of the length of this string gives the note Sa (Do) and one-third gives Sa^1 (Do^1) of the higher octave. If the whole wire be thirty inches the length of the wire for Sa^1 would be ten inches—a length which is most convenient for calculation. Since all calculations must

be based on the base-line and as the difference of its length from that of the speaking wire is, as will be seen below, inappreciable, we take the length of the base-line to be thirty inches. Taking the base-line ZZ′ to represent a wire producing the note Ma_1 of the lower octave the points N′ and N, which divide this line into three equal parts, would be the marks for the notes Sa and Sa^1 respectively. These note-marks are, therefore, twenty and ten inches respectively from Z the upper bridge, and each five inches from O the middle point of ZZ′. The distances of these points in the wire from the frets vertically opposite to them must be equal. We take these distances (PN, P′N) to be a quarter of an inch, as being most convenient for playing on the instrument. We may now proceed on these data with the calculations for the other requisites of the scheme.

In order to find out the length of the speaking wire (SS′) and its position in relation to be base-line (ZZ′) whereof it is a part, we must refer to the figure of ellipse given above. Let the semi-axis major AO and the semi-axis minor BO in that figure be represented by a and b respectively, and ON and NP, the co-ordinates of P, by x and y respectively. Then, from the properties of the ellipse, we get four other relationships and equations, namely,

$$SO = a \times e \quad \cdots\cdots (3)$$

$$a = ZO \times e \quad \cdots\cdots (4)$$

$$b^2 = a^2 (1 - e^2) \quad \cdots\cdots (5)$$

and, $$\frac{x}{a^2} + \frac{y}{b^2} = 1 \quad \cdots\cdots (6)$$

We have to find out the values of a and b from (6), the equation to the elliptical curve.

From (4) we get

$$e = \frac{a}{ZO},$$

As $ZZ' = 30''$

$ZO = 15''$

Therefore, $e = \frac{a}{15}$

Substituting $\frac{a}{15}$ for e in (5), we get

$$b^2 = a^2\left(1 - \frac{a^2}{15^2}\right)$$

Substituting $a^2\left(1 - \frac{a^2}{15^2}\right)$ for b^2 in the equation to the elliptical curve and putting for x and y their values 5 and $\frac{1}{4}$ as mentioned above, we get

$$\frac{5^2}{a^2} + \frac{(1)^2}{4} \div a^2\left(1 - \frac{a^2}{15^2}\right) = 1$$

Working this out, we get

$$a^2 = 224{\cdot}9297$$

Therefore $a = 14{\cdot}9976''$

Also, as $b^2 = a^2\left(1 - \frac{a^2}{15^2}\right)$

$$= {\cdot}0704$$

Therefore, $b = {\cdot}2651''$

Now, $SO = a \times e \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3)$

$$= \frac{a \times a}{15}$$

$$= \frac{a^2}{15}$$

$$= 14{\cdot}995''$$

Therefore, $SS'' = 14{\cdot}995'' \times 2$

$$= 29{\cdot}990''$$

And, $ZS = ZO - SO$

$$= 15'' - 14{\cdot}995''$$

$$= {\cdot}005''$$

Also, $Z'S' = {\cdot}005''$

Thus the length of the speaking wire (SS′) is 29.99 inches and its extremities are each ·005 inch apart from those of the base-line (ZZ′). The difference between the lengths of ZZ′ and SS′ (the speaking wire) is, therefore, quite inappreciable, being only one-hundredth of an inch (·005″+·005″).

We have got above three points on the elliptical curve, viz., P, P′ and B, which are vertically opposite to N, N′ and O, which are identical with the marks for the notes Sa^1, Sa and Ma respectively. Of these P and P′ are each ·25 inch and B ·265 inch

from the base-line. But, these are not sufficient for laying out the elliptical curve. We can get the required number of points by finding out other values of y from the equation to the curve by giving to x other values required for the purpose. As the curve is symmetrical in its two halves on the two sides of its minor axis BB′, we shall give only the lengths of the co-ordinates on one side of the curve, beginning with OB, the semi-axis minor which gives the position of the point in the curve opposite to the note-mark of Ma. The different values of x and y are given below in inches in two columns :

x	y	x	y
0″	·265″	10·5″	·189″
2″	·263″	11″	·180″
4″	·256″	11·5″	·170″
5″	·25″	12″	·159″
6″	·243″	12·5″	·147″
7″	·235″	13″	·132″
8″	·224″	13·5″	·116″
9″	·212″	14″	·095″
10″	·198″		

Finally, we come to the most important requisite for the scheme, viz, the graduation of the base-line (ZZ′). For this purpose the distance between N and N′ which includes notes within the compass of an octave has to be divided into fifty-three parts and marked in such a way that the interval between notes represented by any two consecutive marks will be equal to any other such interval, or in other words, the relation between the vibration-numbers of any two consecutive notes will be constant. Suppose, these marks are placed in a serial order between N′ and N and named M_1, M_2, M_3, M_4 and so on, upto M_{53}, which is coincident with N. Let the ratio of any two consecutive notes amongst these, which is constant, be called r.

$$\text{Then,}\quad \frac{M_1}{N'}=\frac{M_2}{M_1}=\frac{M_3}{M_2}\ \ldots\ldots\ldots\ldots\ldots\ldots\ \frac{M_{53}}{M_{52}}=r$$

Therefore, $\frac{M_1}{N'} = r$

$$\frac{M_2}{N'} = \frac{M_1}{N'} \times \frac{M_2}{M_1} = r^2$$

$$\frac{M_3}{N'} = \frac{M_1}{N'} \times \frac{M_2}{M_1} \times \frac{M_3}{M_2} = r^3$$

$$\ldots \quad \ldots \quad \ldots$$

And, finally, $\frac{M_{53}}{N'} = r^{53}$

Now, N is the octave of N′

Therefore, $\frac{N}{N'} = \frac{2}{1}$

But, M_{53} is identical with N

Therefore, $\frac{M_{53}}{N'} = \frac{2}{1}$ i.e. 2

Therefore, $r^{53} = 2$

or, $r = \sqrt[53]{2}$

$= 1{\cdot}0132$

So, $\frac{N}{M_{52}} = r = 1.0132$;

$\frac{N}{M_{51}} = r^2 = 1.0265$

$\frac{N}{M_{53}} = r^3 = 1.0400$

And so on.

Now these are the ratios between the vibration-numbers of the notes concerned. The ratio for the wire-lengths of any two notes is, however, in the inverse order of that for their vibration-numbers. So, while the ratio between any two notes is to be multiplied to the vibration-number of the lower note in order to get the vibration-number of the higher one, it is to be multiplied to the wire-length for the latter in order to get the wire-length for the former. For example, the ratio of Sa^1 to Sa is 2 : 1 ; therefore, if the vibration-number for Sa be 200, that for Sa^1 will be $200 \times 2 = 400$, and if the wire-length for Sa^1 be 7″, that for Sa will be $7'' \times 2 = 14''$.

Therefore, as the wire-length for the note N, i.e., $ZN = 10''$

That for M_{52} i.e., $ZM_{52} = 10'' \times 1{\cdot}0132 = 10{\cdot}132''$

" " M_{51} i.e, $ZM_{51} = 10'' \times 1{\cdot}0265 = 10{\cdot}265''$

" " M_{50} i.e., $ZM_{50} = 10'' \times 1{\cdot}0400 = 10{\cdot}400''$

And so on.

The wire-lengths for all the fifty-three notes of the scale may be found out by continuing the above process. The distance between the positions of any two consecutive notes in the scale may be had by subtracting the wire-length for the higher note from that for the lower one.

So, the distance between N and $M_{52} = 10{\cdot}132'' - 10'' = {\cdot}132''$

" " " M_{52} " $M_{51} = 10{\cdot}255'' - 10{\cdot}132'' = {\cdot}135''$

" " " M_{51} " $M_{50} = 10{\cdot}400'' - 10{\cdot}265 = {\cdot}135''$

And so on.

The distance between every two consecutive notes of the scale will be found out by continuing this process. All these distances are shown in the following table in serial order, beginning with NM_{52}, which is numbered 1, and ending with M_1N', which is numberd 53.

No.		Inch.	No		Inch.
1	...	·132	17	...	·162
2	...	·133	18	...	·164
3	...	·135	19	...	·166
4	...	·137	20	...	·169
5	...	·139	21	...	·171
6	...	·141	22	...	·173
7	...	·142	23	...	·175
8	...	·144	24	...	·178
6	...	·146	25	...	·180
10	...	·148	26	...	·182
11	...	·150	27	...	·185
12	...	·152	28	...	·187
13	...	·154	29	...	·190
14	...	·156	30	...	·192
15	...	·158	31	...	·195
16	...	·160	32	...	·197

No.	Inch,	No.	Inch.
33	·200	44	·231
34	·203	45	·234
35	·205	46	·237
36	·208	47	·240
37	·211	48	·243
38	·214	49	·246
39	·216	50	·250
40	·219	51	·253
41			·256
42	·225		·260
43	·228		

These figures give the measurements of the divisions of the mid octave. In order to obtain those for the lower octave, these are to be multiplied by two and to get those for the upper octave they are to be divided by two.

We are now in a position to deal with the construction of the instrument. The whole body should be of such length that the two bridges may be placed about thirty inches apart from

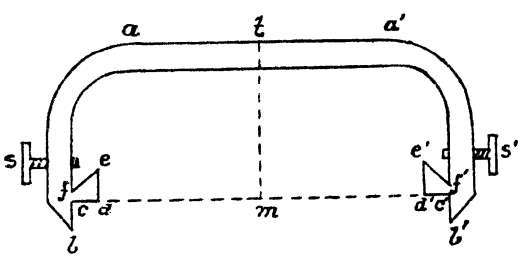

FIG. II.

FIG. III.

each other. The front, i.e. to say, the entire space between the two bridges must be flat and level. The long limb should be about two feet in length from the lower bridge to the sound-box, and its sides should be flat and level. It should be rectangular in cross-section, so that the plane surfaces of the two sides may be parallel to each other and at right angles to

the plane surface of the front. Its breadth should be three inches and thickness about two inches.

The shape and dimensions of the fret, which is of the greatest importance and needs description in some detail, are shown in Figs. II and III.

The top-line aa′ must be straight and about two and a half inches in length. The inside distance between the two legs should be three and one-sixteenth inches in order to just admit the long limb of the instrument, which should be three inches in breadth as stated above. The breadth of the body of the fret should be three-sixteenth of an inch all along. Its thickness should be one-eighth of an inch, except the lower parts of the legs up to three-eighths of an inch above the line cc′, which should be three-sixteenth of an inch in thickness in order to have sufficient space for the screw-holes as shewn in Fig. III. The legs are provided with projections cdef and c′d′e′f′, which are to be introduced into grooves to be cut on the sides of the long limb and to serve as supports of the fret on the edges of the graduated plates to be attached to the sides. The breadth of the base of each projection, which is shewn in the diagram as cd or c′d′, is to be one-eighth of an inch. The other dimension, which is invisible, is to be three-sixteenth of an inch, which is the same as the thickness of the lower part of the leg. These two bases must be perfectly level and in the same plane. At the lower ends of the legs below the line cc′ are the pointers which terminate with the points b and b′. These two points must be in the same plane with the top-line aa′. This plane, which may be called the vertical plane of the fret, must be at right-angles to the horizontal plane of its two bases. The line cc′, in which these two planes cut each other, must be parallel to the top-line aa′. The distance between these two lines, shewn in the diagram as tm, is one inch and a quarter, which is to be regarded as the height of the fret. There should be screw-holes in the thicker parts of the legs opposite to the sides ef and e′f′ of the projections (see Fig. III). Screws s and s′ passing through these holes are to press the sides of the long limb above the groove. All the frets must be

of uniform height and made of a metal, which is light, hard and slightly elastic.

The grooves should be similar in shape with the projections of the frets and slightly larger in size, so that the projections may be easily introduced into them and glide in them freely.

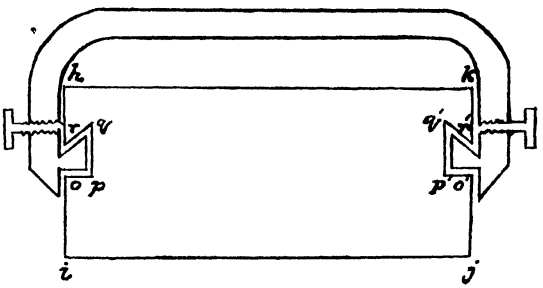

FIG. IV.

In Fig. IV hijk is the outline of a cross-section of the long limb, shewing the two grooves in its sides, which are marked opqr and o′ p′ q′ r′. The fret is shewn in its proper position, the projections being seen through the apertures of the grooves. When it is required to fix a fret at a particular note-mark in the scale, the pointers b and b′ are to be set on the corresponding marks on the two sides of the long limb and the screws are to be pressed in. After the screws touch the sides, the more they are pressed in the more the legs try, owing to their elasticity, to get away from the sides and the more the faces ef and e′ f′ of the projections slide down the sloping sides of the grooves qr and q′r′ bringing the whole fret down and down until the bases of the fret cd and c′d′ touch the horizontal sides of the grooves op and o′p′ and are fixed there firmly.

In order that the procedure to be followed in making the graduated plates and setting them on the sides of the long limb may be understood, let it be imagined that the speaking wire is so placed above a margin of the front surface of the limb, that the base-line, which is coincident with the wire, together with the points of division in it and the elliptical curve are placed in the

same plane with the flat surface of one of the sides. Let it be also imagined that the top of a fret fixed in the grooves is so extended that it meets the elliptical curve at the point T_1 vertically opposite to the point M_1 in the base-line. Now, if the grooves are placed at such inclination to the margins of the limb that, when the fret is fixed in them with its top touching the point T_1, its vertical plane is at right angles to the tangent of the ellipse at that point, then the mark put on the side of the limb at the point in which the vertical plane of the fret cuts the lower margin of the groove would be the note-mark of the required scale corresponding to the note-mark at the point M_1 in the base-line. In order, therefore, to get the point at which this note-mark for the required scale is to be put on a paper, we have to draw a perpendicular to the tangent of the ellipse at the point T_1 and cut off a portion one inch and a quarter in length from that point. Then the other extremity of this portion of the perpendicular, which may be called m_1, would be the required point. Points corresponding to all the other points in the base-line, viz., M_2, M_3 M_4, ... M_{53} can be found out in the same way and called m_2, m_3, m_4, ... m_{53}. The line joining all these points will have the shape of a curve similar to the original elliptical

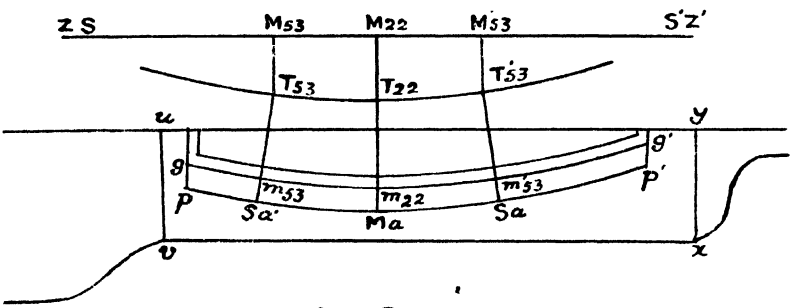

Fig. V

curve. Slight prolongations of the perpendiculars beyond this curve will give the note-marks which will constitute the graduated scale. This scale is to be put on a plate, which is to be attached to the side of the long limb just below the

groove. It is on the small prolongations of the perpendiculars as note-marks that the pointers of the frets are to be set at the time of fixing them in the grooves. The diagram in Fig. V will give an idea of the elliptical curve and the graduated scale and also of the relative positions of the groove and the plate containing that scale, in which only three note-marks have been shown and the others omitted for want of space.

In this diagram the speaking wire SS′, the coincident base-line ZZ′ with three points M'_{53}, M_{22}, and M_{53} indicating the positions of the note-marks for Sa, Ma and Sa^1 respectively and the elliptical curve in an inverted position have been shewn in the same plane with the flat surface of one of the sides of the long limb marked uvxy. The points in which the perpendiculars to the base-line at the three marks meet the elliptical curve are shewn as T'_{53}, T_{22} and T_{53} respectively. The plate which is to contain the graduated scale is shewn with its upper edge in the form of the curve referred to above and marked PP′ g′ g. Just above the plate is the groove, its lower margin coinciding with gg′, the upper edge of the plate. Perpendiculars to the tangents of the ellipse at T'_{53}, T_{22} and T_{53} one inch and a quarter in length each meet the upper edge of the plate at the points m'_{53}, m_{22} and m_{53}. The prolongations of these perpendiculars on the plate are the required note-marks of Sa, Ma and Sa′ for the scale.

In the above diagram the plate and the groove for one side of the long limb are shewn. Those for the other side should be exactly the same in size, but inverse to them in shape and in the positions of the note-marks, just as an object looks when seen through a mirror. The scale should be depicted on a metallic plate. The object of placing a metallic plate is to provide a hard and firm basis on its upper edge for the projection of the fret when it is fixed in the groove. Another metallic plate should be placed above the upper margin of the groove, in order that the sloping side of the projection may have a hard body to slide on and also that the screw on

the leg may not injure the wooden body of the long limb by constant pressure and friction.

The two graduated plates should be so placed that any two note-marks of the same name on them would be equidistant from the margins of the long limb, and the line joining them would be at right angles to the parallel sides of the limb. The speaking wire should be so set on the bridges that it would be parallel to the margins of the limb; the line joining the note-marks for Ma on the graduated plates on the two sides of the long limb and the perpendicular to that line from the middle point of the wire should be in a plane which is at right angles to the plane of the front surface of the long limb; and the tops of the frets fixed at the note-marks Sa and Sa^1 should be exactly a quarter of an inch distant from the wire. If these conditions are satisfied, the wire may be set anywhere on the bridges, provided it is at right angles to the top-lines of the frets.

If now in an instrument constructed according to the directions given above a fret is fixed in the grooves with its two pointers on the two note-marks of the same name, say m_1, in the graduated plates on the two sides of the long limb, then the point on its top vertically below the wire, will coincide with the point T_1 in the imaginary elliptical curve. Similar points on the tops of the other frets with their pointers fixed on the note-marks m_2, m_3, m_4 ····· m_{53} will coincide with the points T_2, T_3, T_4,···T_{53} respectively in the imaginary curve. If now the wire be pressed back by turn on all these frets, the portions of the wire intercepted between them and the upper bridge will coincide with the imaginary lines joining the aforesaid points in the ellipse with its focus S, viz. ST_1, ST_2, ST_3 ····· ST_{53}. As these lines bear the same relationships to each other that subsist amongst the lines ZM_1, ZM_2, ZM_3 ····· ZM_{53} in the imaginary base-line ZZ', the wires which are coincident with them will also bear the same relationships. And, since wires of the lengths of the lines ZM_1, ZM_2, ZM_3 ····· ZM_{53} produce notes tuned according to the cycle of fifty-three, the aforesaid portions of the wire

of the instrument will also produce notes tuned in accordance with the same cycle.

The instrument will give correctly all the notes of the cycle within the compass of two octaves from Ma_1 to Ma^1. There will, however, be some difficulty with regard to the first note Ma_1. This note has to be produced by striking the open string. But, the Ma_1 so produced will be, as explained below, much flatter than the correct Ma_1. It is evident that the open wire is free from any tension due to pressure. The Ma produced by one-half of it is, therefore, flatter than the Ma which is produced when the wire is pressed back on the fret for that note placed just opposite to the middle point of the wire. For the same reason, the Ma_1 produced by the whole of the open wire, which is an octave lower than the Ma produced by one-half of it, is like-wise flatter than the Ma_1 which is an octave lower than the Ma produced by the wire when pressed back on the fret for that note. The remedy for this defect lies in bringing the wire to correct tune by shifting the lower bridge slightly upwards, after the construction of the instrument is completed. This precedure, it has been found by experiment, would not materially affect the accuracy of the instrument, for all practical purposes. The bridge, however, need not be disturbed, if use of the open wire be avoided.

The purpose for which the cycle of fifty-three was originally introduced by Mercator was to have Pythagorean temperament in correct intonation. In this temperament the notes are connected in a series of Perfect Fifths. The Thirds and Sixths are all out of tune in a Pythagorean Scale. The first requisite for just intonation in music is a knowledge of the correct tonality of the Scale; the second is a system of notation capable of expressing the fine distinctions of notes required for such intonation; and the third is a musical instrument on which these distinctions can be demonstrated. Although the correct tonality of the European Major and Minor Scales was found out long ago, the exigencies of the harmonic system, based mainly on equally tempered Scales and depending for its execution mostly on instruments with fixed key-boards,

had to keep the real tonality of these Scales at an arm's length. Singers and quartet and particularly solo players on stringed instruments are, however, said to have often felt the deficiency of such a system. But, for want of a correctly tuned instrument no permanent remedy could be found out. In the sixth edition of "The Standard Course" re-written in 1901 from the book originally issued by the eminent Tonic Sol-faist Mr. John Curwen in 1858, a reference to the cycle of fifth-three is made (pp. 110-11) and the correct positions of notes according to that cycle are shewn in a diagram. Mention is also made there of "many disagreements between the voice and the piano or organ," which are tuned upon the equal temperament system, "making every interval, with the exception of the octave, more or less out of tune". In Helmholtz's "Sensations of Tone", we are told about musicians who were observed to have attained to almost just intonation by the Tonic Sol-fa method of training. Those musicians of India who are still free from the influence of keyed instruments imported from Europe, are also believed to sing or play in just intonation. A certain amount of doubt or uncertainty is, however, always bound to exist in all these achievements until they can be verified by means of a correctly tuned musical instrument. For beginners and those, whose ears for music are still undeveloped, such an instrument is an almost indispensable necessity, if they want to train their ears for just intonation. Above all, it has utility of an universal character, inasmuch as no real lover of music in just intonation can, without its help, expect either to arrive at a true appreciation of the fine distinctions in tonality of the different Scales and Modes, or to be satisfied that he is really able to sing or play in just intonation, or to convince his listeners that he is actually doing so. But, the *sine qua non* for consciously attaining to just intonation in music is scientific ascertainment of the correct tonality of the Scales and Modes used. That is a desideratum yet to be achieved for music in India, where some of the large variety of Scales and Modes, used during the past

several centuries and mostly unknown elsewhere, have fallen into disuetude and ultimately into oblivion for want of adequate measures for their preservation, comprising among other things provision for a correctly tuned musical instrument and an expressive system of notation.

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